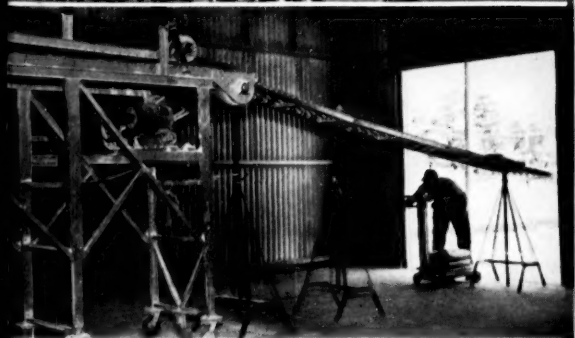


Chemical Week

September 11, 1954

Price 35 cents



Watch Cosden's new moves in chemicals; the guiding tenet: "fluid diversification" . . . p. 18

► Fish fry fetches goodwill as soon-to-be-transplanted employees look over new site p. 24

► Big push behind wollastonite; CW Camera follows pigment process from ore to shipment p. 36

Market for synthetics broadens as electrical wires don chemical coats p. 77

► Mixers plump for fall fertilization to halve problems of one-season business p. 82

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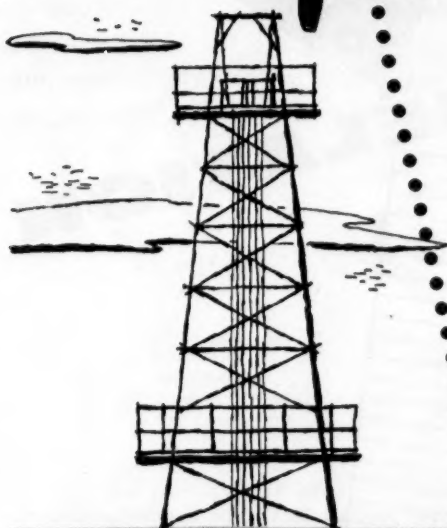
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Here's how Dracco application engineering ended a serious dust nuisance for a Texas company manufacturing drilling muds.

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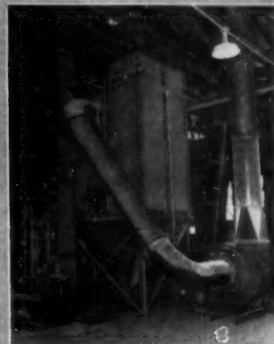
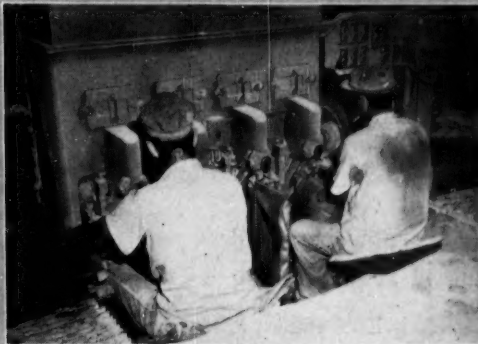
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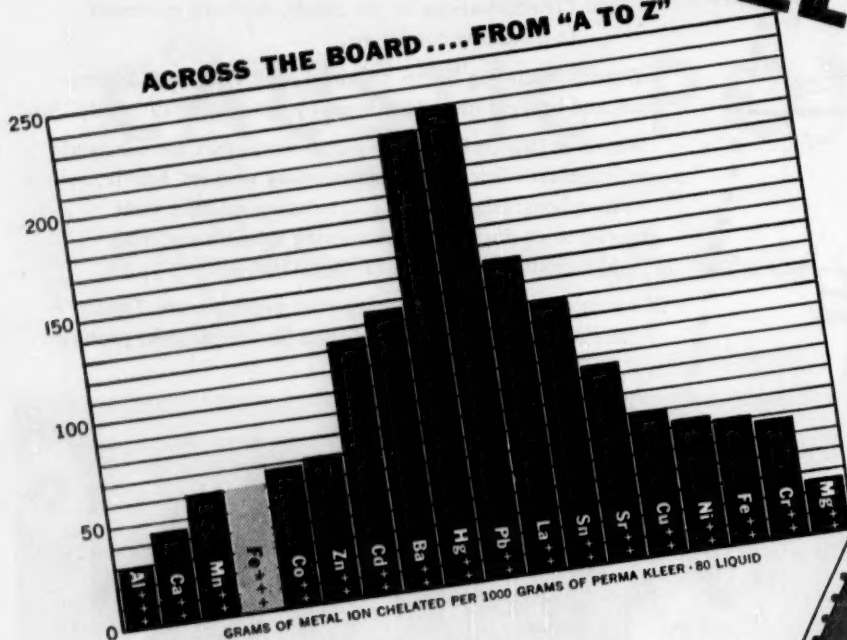


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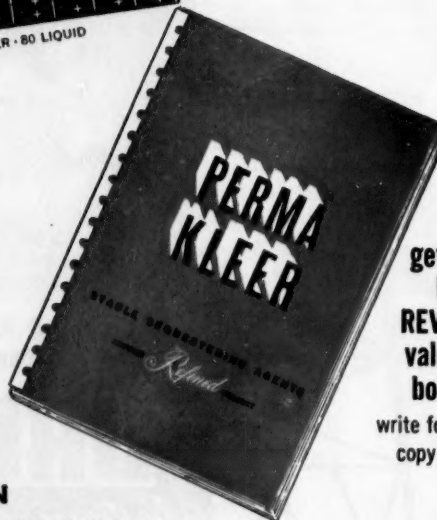


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September 11, 1954 • Chemical Week

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Remember in school they used to tell you that
some things were about as *incomparable* as
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OPINION . . .

Achtung: Colombia

TO THE EDITOR: I was somewhat surprised to observe that in a publication as meticulous and cautious in expression as *CW*, the name of the South American republic Colombia was misspelled *Columbia* (*July 17*).

This is a common error but since *CW* is international in scope, it is expected of the editors that they know their geography. . . .

D. R. HOOPER
President
Hooper Chemical Corp.
Rutherford, N. J.

We harbor this philosophy: to make a mistake once is, perhaps, excusable; to make the same mistake twice—well . . . And we'll admit that we also fumbled Colombia two and a half years ago. Now "Achtung! Colombia" is emblazoned on our editorial bulletin board and posted in front of type-setters and proofreaders.—Ed.

Tell More, Often

TO THE EDITOR: I must take exception to a news article (*Aug. 14*) in your excellent magazine that gives the impression that financial executives of leading chemical companies are unwilling to issue quarterly reports as may be requested by the SEC. Some leading companies do give quarterly reports that include sales and earnings. They must do so to get their shares listed on any leading exchange . . .

In the same issue you have a feature that discusses the key position of U.S. chemical companies "in the worldwide struggle over private versus public ownership." By public ownership, I am sure, you mean ownership by the State, as advocated by Communists and Socialists.

U.S. companies are already publicly owned—by shareholders. If we can broaden this kind of public ownership we will never need to fear State ownership. U.S. chemical companies can assist in the process of broadening ownership of the means of production by cheerfully giving the public as much information as is compatible with active competition . . .

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:
W. A. Jordan, *Chemical Week*, 330
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OPINION

I sincerely feel that this matter is of very great importance, not only to business but also to the welfare of our free enterprise institutions . . .

WILLIAM K. BECKERS
Spencer Trask & Co.
New York

On the second point, we heartily agree. As far as quarterly reports are concerned, however, we meant to convey the impression that many corporate executives do not want to issue quarterly reports of the character, and under the terms, that the SEC may lay down.

Many corporations do, as Reader Beckers points out, issue condensed quarterly statements now—and must do so to comply with the regulations of some leading stock exchanges. What the SEC envisions, however, are more detailed, certified, reports, which would require costly quarterly physical inventories. That some larger corporations are in a good position to provide; other organizations would find it unduly burdensome. And they do oppose the SEC proposal.—Ed.

Safe Skin Soaps

TO THE EDITOR: Your news article "Synthetic Sore Spot" (July 24) could leave the reader with the impression that soaps, alkalies and synthetic detergents are extremely harmful to the human skin . . .

The use of the term "toxicity" when applied to the external use of detergents gives a frightening impression of poison. A dermatologist refers to causes of dermatitis as irritants, sensitizers, possibly allergens . . . You quoted no dermatologist although you mentioned Drs. Barail and Lubowe, both of whom are toxicologists . . .

The whole subject of skin irritation is fraught with issues yet to be resolved and it is impossible to be dogmatic. The assertion that "the main cause of irritation is a high pH which results from normal or excessive amounts of free alkali—derived primarily from hydrolysis of the detergent . . ." is a case in point . . .

pH is a measurement of potential, just as voltage measures an electric potential . . . It is not translated to actuality until something else happens. Thus, in the case of free alkalies . . . that something else is the fact that alkalies must react chemically with oils in the skin . . . and attack the keratin . . . Constant or prolonged contact with alkalies can cause chemical corrosion of the skin . . . the same applies to acids with low pH . . .

There is still considerable controversy, too, as to how much soaps hy-

14. RAILROAD SPUR
(a) Car capacity _____

15. TOTAL ANNUAL TONNAGE BY RAIL
(a) Inbound _____
(b) Outbound _____

16. TERMINALS
(a) Truck _____
(b) River _____

17. POWER
(a) Kwh consumption per month _____
(b) Minimum KW demand _____
(c) Potential KW demand _____
(d) Load Factor _____

18. FUEL REQUIRED ANNUALLY
(a) Coal _____
(b) Natural gas _____
(c) Oil, barrels _____

19. WATER REQUIRED DAILY
(a) Minimum gallons _____
(b) Maximum gallons _____

20. USE OF WATER
(a) Steam _____
(b) Processing _____
(c) Cooling _____
(d) Sanitary _____

21. DOES PLANT WASTE DISPOSAL CONTAIN
(a) Acids _____
(b) Dyes _____
(c) Oil _____
(d) Grease _____
(e) Other _____

22. SIZE OF CITY PREFERENCE
(a) Under 5,000 _____
(b) 5,000 to 10,000 _____
(c) 10,000 to 25,000 _____
(d) 25,000 to 50,000 _____
(e) Over 50,000 _____

23. MAJOR FACTOR _____

24. SIGNATURE _____
TITLE _____

25. G. G. Sarboe
General Industrial Agent
The Nashville, Chattanooga & St. Louis Railway
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Nashville 3, Tennessee
PHONE: 6-5349

The items that we have checked below are the factors that will influence our choice of a plant site. Please send us more complete information. We understand that this inquiry will be kept completely confidential and put us under no obligation whatsoever.

1. Date _____
2. Firm Name _____
3. Address _____
4. City _____
5. State _____
6. Nature of Business _____

7. TENTATIVE OPERATING SCHEDULE:
(a) Number of shifts per day _____
(b) Number of days per week _____
(c) _____

8. PROPOSED PLANT WILL BE:
(a) Main Plant _____
(b) Branch Plant _____
(c) Assembly _____
(d) Distribution _____

9. DISTRIBUTION TO MARKETS
(a) National _____
(b) Regional _____
(c) Local _____

10. EMPLOYMENT
Male _____ Female _____
(a) Initial _____
(b) Ultimate _____

11. PLANT
(a) Floor space _____
(b) Dimensions of building _____ X
(c) Number of floors _____
(d) Type of construction _____
(e) Ceiling height _____

12. PLANT SITE
(a) Acreage _____
(b) Sewerage required _____
(c) City water _____
(d) Underground water _____
(e) Surface water _____

13. LIST MAJOR RAW MATERIALS USED AND SOURCE

Write for your free copy and see why the Central South
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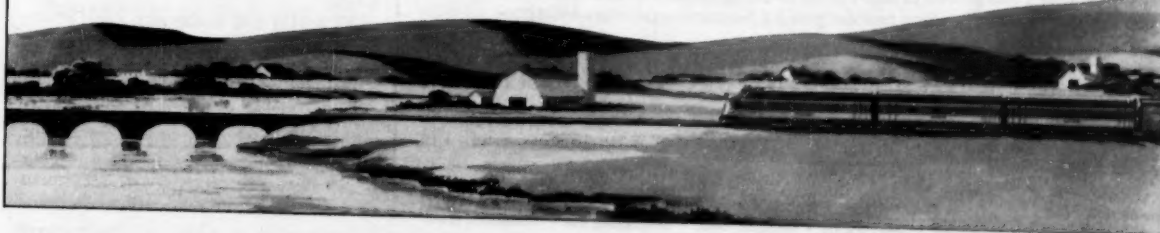
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- Abundant low-cost power and fuel
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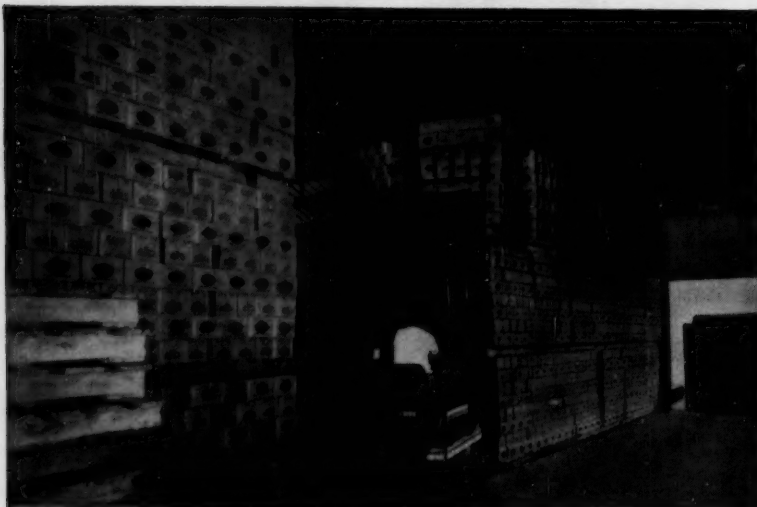
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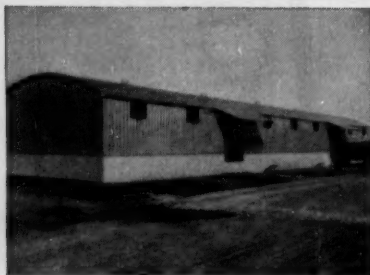
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OPINION

dolyze in aqueous solution. According to McBain, the dissociation of free alkali is very small indeed . . .

It should be stated, also, that after the use of detergents (which can defat the skin) if proper rinsing follows, the skin will of its own volition replace the skin oils. (Time varies with individuals, season, degree of lipophilic detergent used.)

Some of the pertinent points noted by Dr. Barail are in some instances too all-embracing:

(1) "Potash soaps have been found more irritating than soda soaps." This is too general, depends on several factors; e.g., whether the fatty acids are short- or long-chain, saturated or unsaturated, whether emollients are present.

(2) "Most antiseptics added to soaps are irritants and cutaneous sensitizers." This must refer to the generally discarded old-fashioned antiseptics, not to such modern products as hexachlorophene . . .

It is also suggested that soaps and alkalies constitute the biggest proportion of the causes of industrial dermatitis. If alkalies and soaps with too heavy an alkaline builder present were segregated from soaps and recognized skin detergents . . . few cases could be laid at their door. Most dermatologists blame the use of grease solvents, cutting oils, chlorinated phenols and hazardous chemicals used in factories . . . Not least, dermatologists blame dirt.

The prevention of occupational dermatitis, they say, is to rid the skin of contact with all such irritants and for this, they always say, use soap and water . . .

W. S. JESSOP
President
U. S. Sanitary Specialties Corp.
Chicago

Data, Not Opinions

TO THE EDITOR: Your report on nitric acid ("Nitric Acid Etches a Record," Aug. 14) was very interesting but you have given the wrong impression when you said "TVA was vociferous in its claim that a plant . . . using a nitrophosphate process could turn out the cheapest phosphate fertilizer in the world."

TVA did not make any such statement officially . . . nor did any TVA employee, insofar as I know . . .

TVA prefers to make available to industry the technical information that will enable each company to decide for itself whether a new process is economically attractive. We recognize that the economic evaluation of chem-



Dependable Source for Chemical Raw Materials



Thomas P. Brown (seated), technical vice president of Reichhold Chemicals, Inc., confers with Donald G. Patterson, manager of polyester sales and development.

"Wyandotte's raw-material research expedites our product research"

— Thomas P. Brown, Reichhold Chemicals, Inc.

Reichhold Chemicals, Inc., is one of the world's largest producers of synthetic resins, chemical pigment colors, and industrial chemicals. Started in 1927, in a small 4,000-square-foot plant in Ferndale, Mich., Reichhold Chemicals now has 31 plants throughout the world, and last year did a world-wide business of close to \$100,000,000.

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must maintain very high standards. We have found Wyandotte glycols and caustic soda reliable in this respect.

"Close collaboration with producers of basic raw materials expedites our own activities. Suppliers, like Wyandotte, who are continuously researching in their own area — basic raw materials — enable us to concentrate more of our own research on our own formulations and their applications."

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ducer of organic and inorganic chemicals for business and industry. **Wyandotte Chemicals Corporation, Wyandotte, Michigan.** Offices in principal cities.



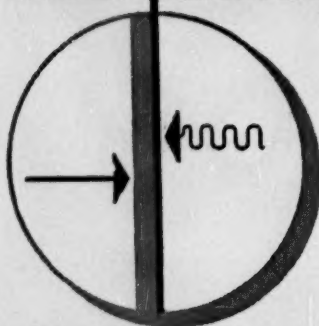
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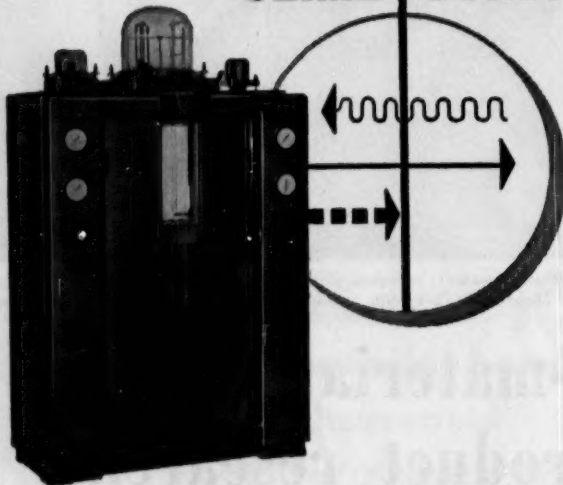
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CD-39

OPINION

ical processes is a complex problem . . . and to assist industry to evaluate nitrophosphate processes we prepared cost estimates as examples . . .

Most companies have found these estimates accurate and helpful . . . "TVA bookkeeping" is not an issue in these estimates.

To illustrate that we have not gone overboard on the nitrophosphate processes to the exclusion of other approaches, I would like to mention our work in developing a continuous ammoniator and in granulating high-analysis fertilizers . . . aimed at lowering the cost, improving quality of fertilizers by more conventional methods . . . Many companies find such improved conventional processes an attractive alternative to the nitrophosphate method . . .

TVA is for any process that will improve and cheapen fertilizer production . . .

T. P. HIGNETT
Chief

Development Branch
Division of Chemical Development
Tennessee Valley Authority
Wilson Dam, Ala.

It may well be that "vociferously" is too loud a word. However, TVA officials told CW as long ago as 1951, and again in 1953, that, precisely as we said in our Aug. 14, 1954 issue: "For producers with captive ammonia facilities a plant using the process could produce the cheapest phosphate fertilizer in the world."—ED.

DATES AHEAD

International Congress of Industrial Chemistry, Brussels, Belgium, Sept. 11-19.

American Institute of Chemical Engineers, national meeting, Colorado hotel, Glenwood Springs, Colo., Sept. 12-16.

American Chemical Society, national meeting, Statler hotel, New York, Sept. 12-17.

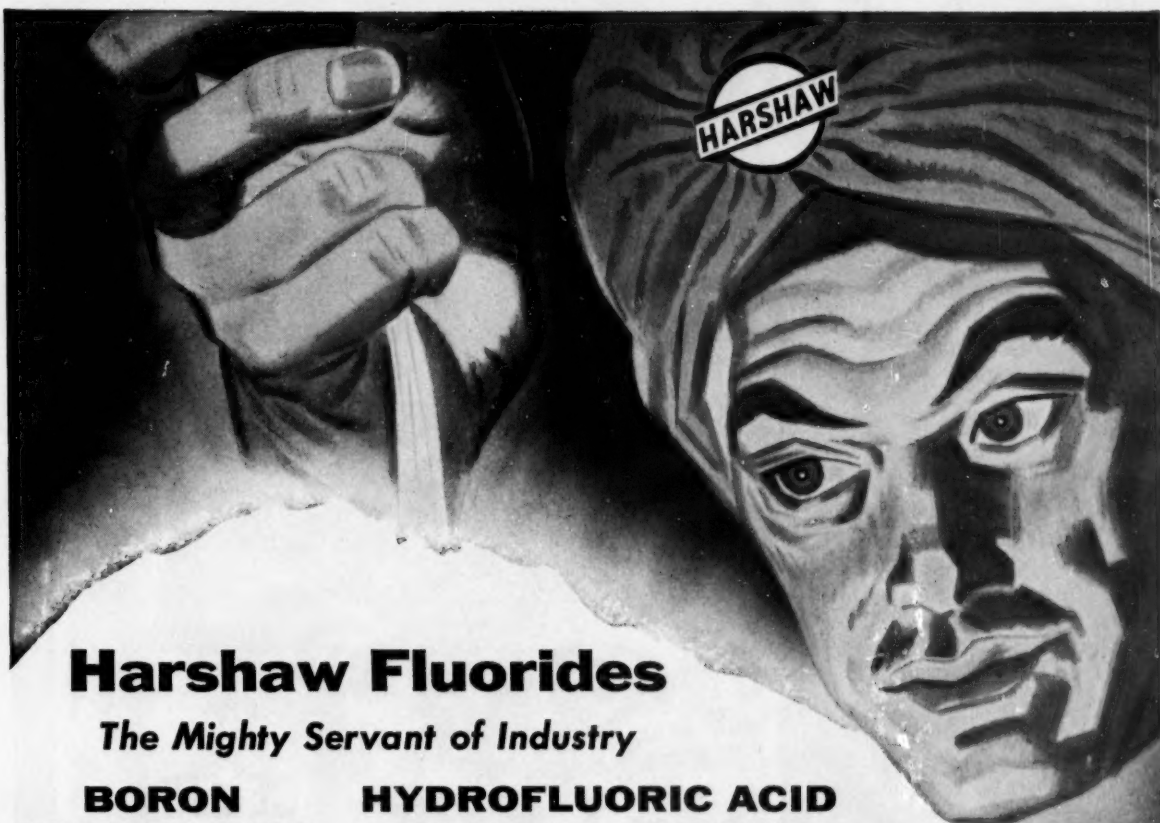
American Coke & Coal Chemicals Institute, The Homestead, Hot Springs, Va., Sept. 13-14.

American Assn. of Textile Chemists and Colorists, national convention, Atlanta Biltmore hotel, Atlanta, Ga., Sept. 15-18.

Chemical Market Research Assn., fall resort meeting, Equinox House, Manchester, Vt., Sept. 20-21.

American Institute of Chemical Engineers-Instrument Society of America, symposium on Materials Handling Instrumentation, Convention Hall, Philadelphia, Sept. 23.

Drug Chemical and Allied Trades Section, N.Y. Board of Trade, annual meeting, Pocono Manor Inn, Pocono Manor, Pa., Sept. 23-25.



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Frosting Mixtures
Hydrofluoric Acid
Anhydrous
Hydrofluoric
Acid Aqueous
Hydrofluosilicic Acid
Lead Fluoborate
Metallic Fluoborates
Potassium Bifluoride
Potassium Chromium
Fluoride
Potassium Fluoborate

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Also, from Celite's "honeycombed" structure comes its great absorptive capacity. This characteristic is profitably utilized to keep powders free-flowing . . . to provide a medium for shipping or storing liquids in dry form. And because of the physical structure of its individual particles, Celite has become the outstanding

flattening agent for paints . . . it serves as a mild, non-scratching abrasive for fine polishes . . . it improves the surface appearance of plastics.

Which of the many Celite advantages can you use to build product performance or cut costs? A Johns-Manville Celite Engineer will gladly discuss your problem, without obligation. For his services or more information, write Johns-Manville, Box 60, New York 16, New York. In Canada, 199 Bay St., Toronto 1, Ontario.

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NEWSLETTER

Look ahead time. That's how the post-Labor Day period shapes up. Size up the first three quarters, ponder on the probabilities for the fourth quarter, scan the horizon to see what looms for next year.

This week most chemical executives are doing just that. Significantly, unlike a year ago, both pessimism and optimism are tempered. The consensus: the bottom isn't going to fall out of business nor is a super-boom in prospect. It shapes up as a pretty healthy status quo in prospect, enlivened, however, by a good deal of rugged intercompany and inter-product competition.

Figurewise, this is what a just-completed CW analysis points up: chemical sales will be up in the fourth quarter, possibly they'll gain sufficiently to put 1955 total sales ahead of 1954. Output will hit a new high—probably by early next year; prices, over-all, will be quite steady (up or down only a few percent); exports for the second half of 1954 will be far ahead of the first half, could push the year's chemical exports some 20% above 1953.

Capital expenditures, however, are leveling off. Considering fourth-quarter probabilities, it looks as if such 1954 investments will be down 15% from peak-1953 but still roughly equivalent to robust 1951.

•
That's the over-all outlook. But in a couple of areas there's more than a fair share of controversy as to how sales will shape up. Take fertilizers as one example. Some producers exude confidence and they're barreling along with expansion plans with nary a quaver about profit prospects; others are concerned. They talk—euphemistically—about “too much, too soon,” or candidly and glumly, about simply “too much.”

But both camps, who have based their expectations—and opinions—mainly on fertilizer-for-food-crop estimates, are beginning to take a close look at fertilizer-for-pastureland developments. There's a lot of work going on, for instance, in California, Washington, Oregon.

There's no questioning that fertilizing (usually by airplane) can be resultful in terms of lush forage. But it's still too early to assert definitely that such a procedure can pay off in beef per acre. But the fertilizer potential—if the “ifs” are cleared away—is intriguing: in California, alone, there are some 10 million acres of rangeland, of which at least 3 million acres warrant fertilization. A report of recent tests will be issued by the University of California within weeks.

•
Also on the horizon, and well worth watching for the impact they'll have on the chemical industry:

- Some basic polyethylene patents will expire within a couple of years and not a few polyethylene producers are fretful lest this will result in a flock of new entries in the resin race at that time. If DPA were to boost its present goal (550 million lbs. by 1956)—which would permit the building of more fast-write off facilities—which, in turn, would mean that the picture in 1956 would be less alluring to any would-be newcomers—it would be a not unwelcome move (to put it mildly) as far as some present polyethylene makers are concerned.

- The Italian Commission of Patent Appeals will render a deci-

sion soon that may signal an end to the long feud between U.S. pharmaceutical firms and the Italian patent office. Italy has long maintained a curious nonpatent protection policy on pharmaceuticals. The State Dept. is urging real patent protection for U.S. firms; the Italian Commission may go along—in the decision it will hand down this month—completely, or perhaps, proffer a compromise.

- The Italian Sulphur Board will send a delegate to the U.S. soon to seek a renewal of the prewar Sulphur Marketing Agreement between the two countries. Reason: the Italian industry has been struggling; renewal of the agreement, it believes, could alleviate the crisis.

- Following close on the heels of the U.S. move to lift embargoes on a host of items to Iron Curtain countries (CW, Sept. 4, p. 14), the West German government has scratched some 100 products from the list of goods that can be shipped only with special export permission. Two significant ones: ammonium sulfate, calcium cyanamide.

•
It's the same group, but the American Council of Commercial Laboratories has taken a new name; from now on, it's the American Council of Independent Laboratories. The name-change was approved by a two-to-one vote of ACIL's 65 consulting laboratories.

Reason for the switch, according to ACIL executive secretary, Harold Dudley, is to eliminate confusion over the group's function; the new name is designed to underscore the objective nature of members' activities, make it clear that they are not connected with companies and trade groups.

Not stated, but a pointed source of curiosity: how the new designation ties in with consultant's efforts to improve their collective position in the face of the competition from nonprofit research institutes.

•
Research is in the spotlight again this week. But a race rather than a rechristening is the reason. In Canada last week, Hans Selye, director of University of Montreal's Institute of Experimental Medicine and Surgery, introduced a pair of British hormone researchers, revealed the existence of a full-steam search by drug firms for a synthetic route to a novel hormone.

Labeled aldosterone, the steroid has long been the nub of a biochemical puzzle; for years it has been known that an adrenal hormone, possibly the most potent, had yet to be isolated and identified. Last year, Sylvia Simpson, of Courtauld Institute of Biochemistry, and James Tait of Middlesex Hospital (both of London), and Ciba researchers in Switzerland, pinpointed aldosterone.

Now, it's a question of forging a synthesis that could yield the new hormone in quantity for broad-scale medical research and evaluation. Right now, it's established that aldosterone is the most potent drug known for the treatment of Addison's disease. But it must be extracted from beef adrenal glands, is obtained in almost infinitesimal yield.

•
You can expect to hear more about a new contender in the solids-vs-liquids specialties tussle (highlighted by the dry and bottled bleaches): B. T. Babbitt is now test marketing in four cities (Columbus, O.; Lansing, Mich.; Madison, Wis., and Sioux City, Iowa) a powder "household ammonia".

... The Editors

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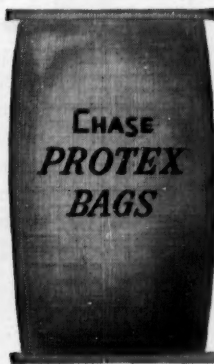


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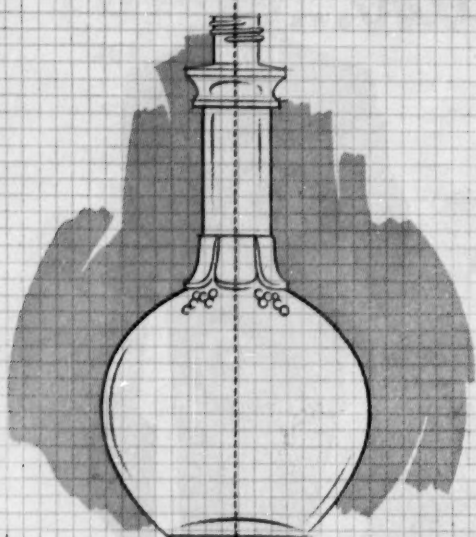
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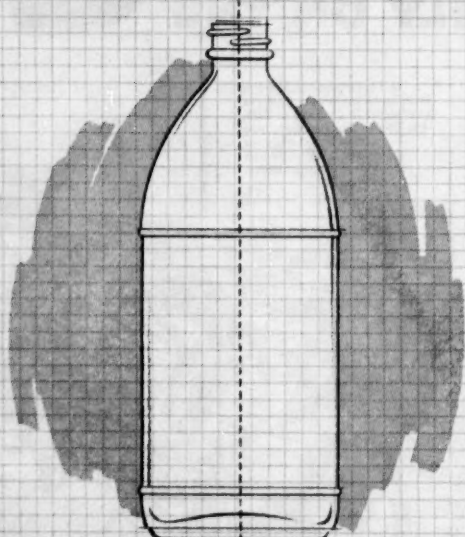


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30 BRANCHES AND SALES OFFICES—STRATEGICALLY LOCATED

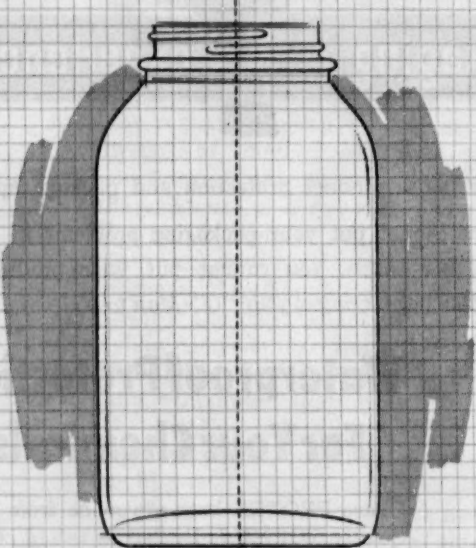
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A package designer who creates beauty to capture shopper's attention?



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**All three—
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Beauty of design will not be enough if you fail to meet requirements of high-speed filling lines. Product protection to the retail shelf may fall short of protection during actual use. The Owens-Illinois method of systematic investigation of packaging problems by engineers, designers and marketing experts is the big reason why successful packages so consistently come from Owens-Illinois.

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Cited on Citric

Asserting that its U.S. patent No. 2,353,771 covers the "submerged fermentation" process used by the country's principal producers of citric acid, Ferment-Acid Corp. of New York is suing Chas. Pfizer & Co. of Brooklyn for more than \$5 million for alleged infringement.

Ferment-Acid says that other citric manufacturers concerned should take this suit as warning that the Szucs patent is going to be enforced against all comers.

Pfizer denies that it's infringing the Szucs patent or that it has been using any confidential information furnished by Ferment-Acid during a 16-month period in 1944-45 when Pfizer was investigating the commercial applicability of the "deep fermentation" process devised by Ferment-Acid's chief chemist, Joseph Szucs. According to Pfizer, the investigation showed that the process was not suitable, so the contract with Ferment-Acid was allowed to expire.

Look-See Pact: That contract, according to the complaint filed by Ferment-Acid in U.S. District Court at New Haven, Conn., provided that Szucs would help Pfizer chemists test the Szucs process, and that Pfizer would have an option to buy a license if the government issued a patent on the method. The patent was issued on July 18, 1944, the complaint says, but Pfizer did not exercise its option. Instead, Ferment-Acid charges, Pfizer "has been secretly utilizing the principles, data, know-how and other detailed information" disclosed to Pfizer during the investigation period.

Ferment-Acid, a research and development company that was organized some 12 years ago, has had Dr. Szucs working on various fermentation processes since the Hungarian-born chemist came to this country in 1941. It credits him with having developed both the "pan method" and "deep fermentation" process of citric manufacture; most of his work in this country has been done at the Boyce-Thompson Institute for Plant Research, Yonkers, N.Y.

The plaintiff is asking an injunction against further infringement, treble damages for the alleged infringement, and \$5 million for unlawful use of the Szucs techniques.

Crossroads for Shale

This week and every week bring changes in the status of government-owned chemical process plants; latest shifts concern the Bureau of Mines' oil-shale demonstration plant at Rifle, Colo., and General Services Administration's idle magnesium plant at Manteca, Calif.

In the fortune-teller's booth—figuratively—is the shale plant, with a 24-man committee from the National



NPC'S HALLANAN: On shale plant's future, his group reads the tea leaves.

Petroleum Council reading the tea-leaves. If this committee finds that there's more worthwhile research and development work for the shale plant to do, then Secretary of the Interior Douglas McKay will ask industry if it's willing to chip in and share the operating costs; otherwise, this plant will fold up. NPC President Walter Hallanan appointed the committee at McKay's request after a team of industry advisers last month recommended closing the plant "unless there is a substantial contribution by industry under a cooperative agreement." Heading the committee of oil and gas company officials is Major B. A. Hardy, an independent oil producer of Shreveport, La. Among the committee members is a representative of Union Oil Co., which developed a shale oil retorting process

different from the gas combustion process developed by the Bureau of Mines' scientists at Rifle. Outside of liquid fuel hydrocarbons, principal products would be ammonia and sulfur.

It's official now that GSA has leased the Manteca magnesium plant to Western Pyromet Co., San Francisco, to test a new titanium reduction process. Pyromet—reportedly working on a modification of the widely used Kroll process—will pay \$2,000/month for 9 to 12 months. After that, the firm has an option to lease the plant for an additional 10 years, converting it to a commercial titanium facility with possible capacity of 6,000 tons/year.

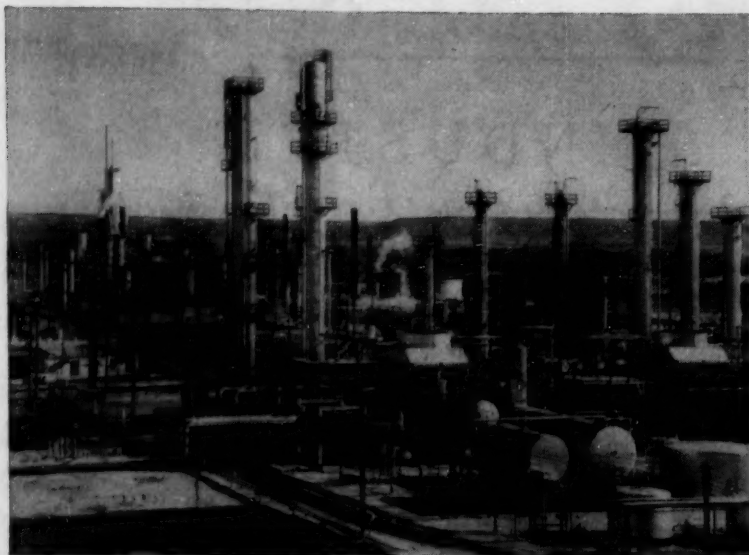
Step-up Coming?

It's virtually a military secret, but possibly the federal government is starting this month to step up its lead and zinc purchases in accordance with President Eisenhower's recent decision that instead of raising tariff rates on those commodities, the government will help domestic producers by increased buying for the nation's strategic stockpile.

For items not going into the stockpile, General Services Administration is not coy about listing its purchases; for example, a GSA report out last week shows second-quarter buying of 7,391 long tons of chrome ore and concentrates, 803,498 lbs. of columbium and tantalum pentoxide, and more than 2 million long tons of manganese.

But all that GSA will say about lead and zinc is that bids have been requested for domestic ores mined since April 1 to be delivered by Nov. 15. It's assumed that purchases will be at current market prices—14¼¢/lb. for lead, 11-11½¢/lb. for zinc—but anything you see or hear about quantities to be bought is only speculation. It's generally estimated that during the summer, GSA was buying at the rate of 8,500 tons of lead and about 14,000 tons of zinc each month. Under the new stockpile program, monthly acquisitions can go up to about 19,000 tons of lead and 28,000 tons of zinc.

To the chemical process industries, there's a double significance: the effect of this buying on lead and zinc as chemical raw materials, and the precedent being set for aiding an industry hurt by foreign imports.



BTX UNITS: The single exception to Cosden's guiding principle of sticking to . . .

Making, Not Selling

The position of a small chemical concern among industrial giants is much like that of the man who lives by his wits. Much of its success depends on flexibility—it has to capitalize on its ability to move fast and decisively when opportunity beckons. Too, the company has to stick to what it does best, and, perhaps reluctantly, eschew those projects that others are better qualified to handle.

That's the guiding policy of Cosden Petroleum Corp.'s Chemical Division; last year it accounted for over \$4 million of the company's gross sales and bids fair to become an even larger contributor to company coffers in the years ahead.

Profits from an olefin polymer plant, completed just six weeks ago, should swell the purse this year; moreover, company officials are now eyeing the meta- and ortho-xylene markets for future commercial exploitation.

Late Start: Compared with other petroleum companies, Cosden actually got a late start in chemical production. Its first project to recover marketable chemicals from refinery waste materials was launched in 1946, when there was a particularly robust demand for cresylic acid in the U.S. (Cosden had a crude cresylic that could be purified.) Profits from the cresylic acid unit over the years have been relatively small—some \$200,000/year—but this has been sufficient to pay for pilot plant and laboratory work on a series of other chemical products.

"This first successful chemical venture had an important psychological value, too," says Bill Jackson, director of the Chemical Division. "It was Cosden's first sortie into an unknown field and it convinced management that petrochemicals was a natural field for diversification, and, of course, it wasn't far removed from refining." It taught Cosden something else as well. In marketing chemical by-products of the refinery, it soon became apparent that chemical selling requires a specialized knowledge—not usually found

among oil personnel. Result: the company (with the single exception of its benzene, toluene, xylene activities) has followed a firm policy of seeking out congenial partners in the chemical industry to either consume or market its chemical products.

The first such deal was made with Advance Solvents & Chemical Corp., which marketed the cresylic Cosden made; the second was with Sharples Chemical, which took Cosden-made distilled mercaptans and sold them—mainly as gas odorants.

Heavy Going: But Cosden's path was not broad, smooth and without pitfalls. "Most of our false starts," admits Jackson, "were caused by over-enthusiasm. Example: some time and effort—but not much money—was lost in turning out symmetrical trithane ("an intriguing structure") for which, at the time, there was no sizable market.

One big step forward was a matter more of luck than of foresight, and it came at a time when the switch of railroads to diesel fuel made it imperative for Cosden to find a market for its residual fuel oil. Contact was made with Cabot, which was then considering expanding its carbon black facilities, and a deal was made whereby Cosden sold Cabot acreage adjacent to its Big Spring, Tex., refinery. Cabot built a 65-million-lb. carbon black plant, Cosden piped in a custom-made furnace black oil. "This move alone," says one Cosden executive, "probably was the greatest single factor in keeping the refinery running in 1949."

Biggest Venture: Marking Cosden's first really substantial (\$3 million) commitment to chemical production was the BTX venture in 1951. Presi-



MILLER, GRIMES, AND JACKSON: Plan for future diversification, even while they frankly admit—"we're not yet sure where we're heading."

dent Raymond Tollett (a former FBI agent) became interested in the Plat-former-Udex combination for simultaneously upgrading heavy naphtha (to high octane gasoline) and production of benzene, toluene and xylenes. Actual production started in the fall of 1952; output last year was rated at 38,544 bbls. of benzene, 98,874 bbls. of toluene, and 122,922 bbls. of xylenes. Before the unit was ever built, American Cyanamid had contracted to take somewhat less than half the rated capacity of benzene and xylenes, but it looked as if the company, contrary to its avowed policy, would be forced to sell the remainder on the open market.

Officials had their eyes open, though, and soon discovered that Phillips Chemical Co. was considering building a paraxylene plant at Borger, Tex. It would have been uneconomical to suggest moving crude xylenes to Borger for processing, since paraxylene would be only a small percentage of the whole. But Cosden had another proposition: it arranged with Phillips to lease sufficient land at Big Spring to build a separation unit; Cosden operates and maintains the plant for a fee. Under such an arrangement, the first tank car of para-xylene was shipped to Phillips last December.

Mixed ortho-xylenes and meta-xylenes are still sold on the open solvents market, but Cosden is searching for a "partner" to exploit them; it's also seeking companies interested in working on ethyl benzene.

Then, too, there are some 8 tons/day of relatively pure by-product hydrogen, 5-7 tons of pure hydrogen sulfide Cosden is itching to put to use.

Coming Up: What will come next is a question. Researchers have developed a backlog of ideas—awaiting consideration; the trend seems to be toward production of specialty chemicals.

For the immediate future, Jackson has an appropriation to build a specialty fractionator (capacity, 400 bbls./day), plans to cut out the 9-carbon fraction for export—mainly sale to Germany, England, Italy and Norway. Another possible use: to obtain a narrower cut of xylene.

"We have to think in terms of such flexibility," he maintains. "It's true, we're thinking in terms of producing pure isomers and we are considering a resin plant. But back of any diversification move must be the thought that at some future date a new, more profitable market will open up. To keep its place among chemical producers, Cosden has to plan for future diversification, even if it doesn't know at the moment where that expansion will be. It's our stock in trade."



MENDES-FRANCE: Silence on specific measures to boost French exports suggests a . . .

Shift in Plans?

Chemical traders keeping a watchful eye on the ambitious French plan to cut in on the lucrative chemical dollar market are relieved this week by the news from Paris.

Premier Pierre Mendès-France, who had seemed about ready to operate on the sick French economy, now appears to have reversed his field. Whereas his avowed aim had been to eliminate the foreign trade balance, thereby raising the French standard of living, his policy now seems to be to favor internal markets (or French territories overseas)—cutting back production wherever capacity exceeds demand.

Actually, the change in policy is evidenced more clearly by what the French premier has failed to do than by what he's officially said. Given full rein by Parliament to push imports wherever necessary (and special powers by decree to enforce his rulings) Mendès-France has shown singular reticence to take any positive steps—though he's undoubtedly well aware (being a financial expert) that the combination of high tariffs and low

tax rebates on exports is pushing French prices on chemicals sky-high. "The tip-off that nothing much is really going to be done to spur French chemical exports," notes one observer in Paris, "is that Mendès-France has talked in generalities on the subject, said little about the specific measures he intends to take."

"Simply delivering an occasional pep talk to French exporters has very little effect on matters."

Given the present exchange rate for the franc, the exporter invariably drifts back toward the internal market—prices are higher there. In some individual cases, it's true, tax remissions offset the difference, make the export market attractive—but on the whole the average chemical producer in France today gets a better return on his investment if he sells at home.

Cartels and high tariffs on chemicals just cut off competition, make matters worse. "It means," notes one U.S. critic, "that French chemical makers can maintain their current high prices without fear—either of being beaten out at home, or of being

outpaced by foreign companies."

Just Delayed? Regardless of the current feeling that Mendes-France has backtracked on his plan to boost exports, there may still be a chance that the program's merely delayed—not shelved.

At the next stage of trade liberalization within the EPU area (scheduled for Nov. 1), France has promised to increase the percentage of her imports freed from quota restrictions from 52% to 65%. Also, it's possible that there may be some financial decrees by the government that could affect chemical exports.

Consensus this week holds, however, that the French challenge to export markets is at best a pipe dream. Fall of the Mendes-France government wouldn't change the situation much either. No major increase in French chemical exports can come about until and unless the French fiscal system is revamped.

EXPANSION

Titanium: Rem-Cru Titanium, Inc., Midland, Pa. (jointly owned by Crucible Steel Co. and Remington Arms, Inc.) is planning a \$12-million addition to its titanium facilities, now rated at 2,500 tons of ingots/year.

Gypsum: Celotex Corp., Chicago, will spend \$3 million to expand and modernize its gypsum plant at Port Clinton, O. The goal, company officials say, is to double current gypsum capacity.

Cement: Ideal Cement Co., which has tripled its cement production in the West over the past decade, is planning further expansion into the Pacific Northwest and British Columbia. The company has already purchased an industrial site, near Vancouver, B.C., and holds options on nearby limestone deposits. Annual production now stands at 21 million bbls. of cement.

Gypsum: The National Gypsum Co. has disclosed that it plans a \$15-million expansion program—to be consummated within the next 18 months. Initial expenditures will include the purchase of a large gypsum quarry near Halifax, N.S., enlargement of facilities at Baltimore, New York, and Savannah, Ga., and outlay for a mine and plant at Shoals, Ind.

Dry Ice: Food Machinery & Chemical Corp.'s Westvaco Mineral Products Div. will build a dry ice plant at Lawrence, Kan., using the carbon dioxide from its present phosphate operations. Construction contract has

been let to Wigton-Abbott Co.; completion is scheduled for May '55.

Manganese: Manganese Chemical Corp. has completed the second phase of its expansion program to extract pure manganese from low-grade ore at Riverton, Minn., and will get into commercial production this month. The plant's designed to handle 70,000 lbs. of manganese carbonate daily.

COMPANIES

Dow Chemical Co. has filed a registration statement with the Securities and Exchange Commission covering an offering of 200,000 shares of common stock at \$33 to employees (of the company, its subsidiaries, and domestic associated companies) under a payroll deduction plan. As in previous plans, employees will be permitted to subscribe for stock up to 10% of their annual wage; but directors of the company will be excluded from the right to subscribe.

Pittsburgh Plate Glass Co. has transferred the property and business of Natural Products Refining Co., Jersey City, to the Columbia-Southern Chemical Corp.—a wholly owned subsidiary.

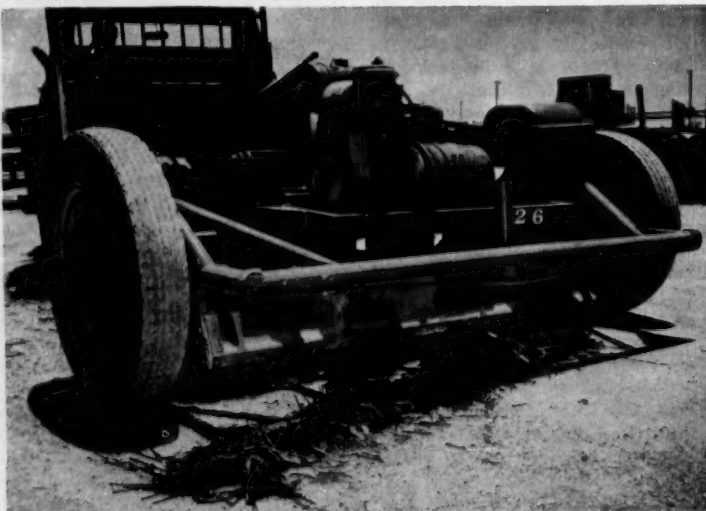
The assets of Natural Products were acquired by Pittsburgh Plate on Aug. 17.

Two divisions of Union Carbide and Carbon Corp.—The Oxweld Railroad Service Co. and Linde Air Products Co.—have combined. Linde has formed a new railroad department, which will take over the business formerly handled by Oxweld.

Basic Management, Inc., Henderson, Nev., has offered the City of Henderson the townsite water system (with two minor exceptions) for \$106,370. Under terms of the offer, BMI says it will make no profit—the figures cited being the direct amortization cost. Appraised value has been set at \$300,000.

The city council of Henderson, upon consideration, has tentatively approved the contract pending "several minor changes (that the water be sold at cost, and that the daily gallonage available be upped beyond its current 5 million gal./day)."

The settlement brings to a halt the outflaring of resentment levied against BMI by residents of Henderson (CW, June 20, '53, p. 15).



Nondiscriminatory Magnet

DRIVERS on the 64 miles of roads serving Dow plants in Texas are now protected against nail-punctured tires by a mobile magnetic broom that regularly makes tow runs, whisks up offending bits of metal. Aside from its industrial and public relations value, the pro-

gram has contributed to savings on company vehicles.

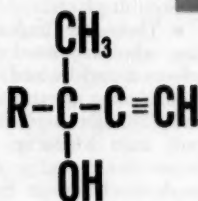
The company cites this note of caution: operators of the electromagnetic broom make it a point to avoid manhole covers. If they don't the nondiscriminating magnet snatches them up too.

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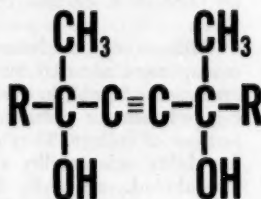
**METHYL
BUTYNOL**

B. Pt. 104.5°C.
M. Pt. 2.6°C.

**METHYL
PENTYNOL**

B. Pt. 121.2°C.
M. Pt. -30.6°C.

Some Applications—Stabilization of chlorinated organics, synthesis of isoprenoid materials, solvent for methacrylate polymers and some polyamides, hypnotic and sedative.



**DIMETHYL
HEXYNEDIOL**

B. Pt. 205.6°C.
M. Pt. 95°C.

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OCTYNEDIOL**

B. Pt. 222°C.
M. Pt. 55°C.

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COLTON



MANAGEMENT HUDDLE: V-P Manning with plant managers Joseph and Roy Unanue.

Policy for Prestige-Building

Yankee imperialism is at best an unhappy phrase. But whether it becomes a popular judgment or a discredited Communist cliché will depend largely on how American management, in this period of growing U.S. overseas investments, handles industrial and community relations abroad.

On the record alone, companies set on cracking the South American markets can do far worse than to take a cue from Mathieson Co.'s Squibb Division, which just started operations at its new penicillin plant at Cali Colombia. Long on experience and short on trouble, the company has already done much to erase the bad taste of carpet-bagging and profiteering ventures for which U.S. industrialists were known

in South America during the first half of the century.

Quick to point out that the lessons of Squibb experience are not meat for every company in every corner of the world, Executive Vice-President L. W. Manning does believe Squibb's good relations in Brazil, Argentina, Peru, Colombia and Cuba are soundly rooted in a few basic principles.

- The company takes a long-range view of its overseas investments, doesn't count on immediate profits. It tries to take the bitter with the sweet, has learned to live with a host of aggravating problems, both political and monetary. (When its assets in Argentina were frozen in 1949-50, for instance, it adapted to the condition,

used the blocked pesos for research.)

- Squibb deliberately gears itself to become an integral part of each country's industry, not just an export arm of a U.S. company. In Rome, it swallows a few prejudices and does business as the Romans do, has no thought of reforming native industry in the "American Way." The philosophy: practice U.S. industrial efficiency, don't preach it.

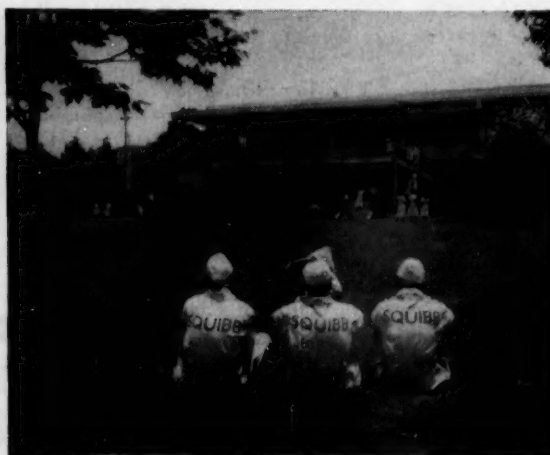
- The Mathieson subsidiary employs nationals wherever possible. Of its 5,000 employees in Latin American plants, only 11 are from the U.S.—representing the top level of management. Initially, of course, these plants had to use U.S. technicians, engineers and scientists. Now the supply of skilled manpower is looked after by sending technical personnel to the U.S. for two or three months' training in Squibb plants.

- Those few "imported" administrators who are needed are carefully screened and trained. While it is not easy to come up with the ideally qualified "foreign service" management man, says Manning, he must: (1) know the country backwards; (2) speak the language fluently; and (3) be a good business man, to boot. A Latin background in South America is more important than special knowledge of the drug business (e.g., Squibb's father-and-son combination, both plant managers—Roy Unanue at Lima, and Joseph at Cali—are Latins by birth, U.S. citizens by naturalization).

With an eye to future supply of management material for its overseas operations, Squibb has set up a training program for potential candidates just out of college. They are screened for ability, adaptability and desire to live abroad, are given 5-6 years of



WARNING: Boost for health, prestige for Squibb.



PRODUCTION TEAM: All but 11 of 5,000 are nationals.

preparation before heading out on the job.

The company backs up its basic policy of sound overseas community relations with institutional programs adapted to the special problems of the area. Programs like:

- Its no-strings-attached, three-year fellowships awarded to Mexican doctors for specialized studies in universities and hospitals in the U.S. and Mexico. (Pleased with its success in Mexico, the company plans fellowship programs for other countries.)

- Its public health advertising campaign. With the blessings of ministers of Public Health, Squibb—not completely altruistically—plugs the theme, "go see your doctor," in movies, posters, booklets, and newspaper ads. Meantime, in its Institute of Medical Research (New Brunswick, N.J.), it carries on considerable work in diseases endemic to Latin America.

One obvious advantage for the company in these two programs is the goodwill gained among members of the medical profession who buy and prescribe pharmaceuticals. But they also serve to encourage the spread of adequate medical care where lack of it is a major problem.

No company—chemical or otherwise—operates a business overseas to improve international relations; it does so to make money. But, says Manning, there's nothing but headaches involved unless a company is accepted by the community as a good business citizen rather than being tolerated as a foreign subsidiary that exploits the country.

To achieve such a status isn't easy; but Squibb, and others who are deep in overseas industry, are conscious of its essentiality.

Another Convert

This month Philadelphia, Pa., joins the roster of some 1,000 communities in 43 states that add fluoride to their water. After delays of getting the program under way, specialized equipment to add fluosilicates in infinitesimal proportions (1 ppm.) has been installed for adding and testing the chemical. Cost to fluoridate the water, based on other cities' operations, will run about 11¢/year per person.

Delayed by some technical problems, fluoridation in Philadelphia was expected to start Labor Day, has been set back a bit, but certainly will be rolling sometime this month.

"That," as one fluoridation exponent points out, "just about evens out the score on late developments in the fluoridation struggle. Los Angeles (CW, June 19, p. 26) has been vindicated."



SACRAMENTO AND ITS RIVER: For city's water, U.S. standards are deemed low.

None but the Pure

Out in California's capital city this week, they're trying to decide whether they should put out a "welcome" sign for industrial companies that might want to build plants along the shores of the Sacramento River—the storied stream of the Forty-niners' gold rush. It's a proposed chemical plant that's forcing the issue. Ecusta Paper Co., a division of Olin Industries, also is considering a free site in Oregon and another location in Washington state, but would prefer to build its cellophane plant on a 500-acre plot on the Sacramento River near Red Bluff, Calif., about 150 miles north of Sacramento. Red Bluff is close to potential markets and to two feedstock sources, carbon bisulfide (Stauffer) and natural gas (which is not yet available in Washington and Oregon). Du Pont, too, has been eyeing the West Coast cellophane market, has been nibbling at a site in Oregon's Willamette Valley. It appears that the Pacific Coast market will sustain only one cellophane plant for some years to come; so if Ecusta breaks ground, Du Pont probably will drop out, and vice versa.

So for the city of Sacramento and the Central Valley Pollution Control Board, the problem is whether to set effluent standards that will permit Ecusta and other industrial firms to use the river, or to set standards that will protect the river's present drinking-water quality. According to one school of thought, the river already has to carry all the contaminants it can handle even though its contamination is considerably less than the amount

that the U.S. Public Health Service regards as acceptable.

Matter of Principle: It's suspected that city officials, in opposing any further contamination of the river, are making a stand for principles and politics, figuring that if one plant is allowed to discharge chemical waste into the Sacramento, other plants are sure to follow.

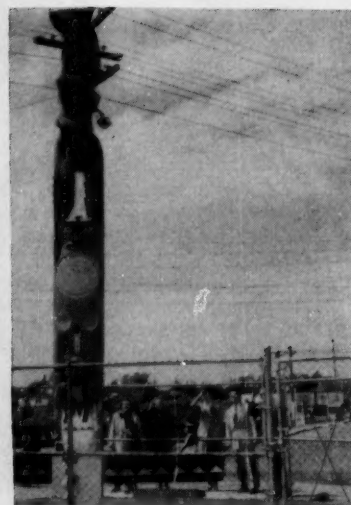
The California State Division of Water Resources argues against any additional pollution on the grounds that the state's long-range water plan envisions deportation of water from northern to southern California, and that good quality water will be required.

At last month's meeting of the regional pollution control board, Olin Vice-President N. H. Collisson declared that Ecusta would never have considered locating at Red Bluff if there had been any doubt about the treatment of plant effluent so as not to impair the Sacramento's public usefulness. He charged that a local newspaper and other opponents of industrial development along the river have been "grossly unfair," and warned that "industry generally would view an adverse decision here as a clean-cut mandate from the state that you do not want industry."

Latest predictions are that the board will set standards that will give Ecusta enough leeway to go ahead with plant construction; but that if the city appeals the decision, Ecusta may go to Oregon rather than be involved in a long drawn out legal fight.



ALIGHTING IN SEATTLE, Olean scouts hurry to Ferndale to inspect refinery where men will work.



TOTEM is unfamiliar sight.



THEY tour local grade school.

Cross-Country Scouting Party

Selling a plant's employees on the merits of pulling up stakes and moving cross-country to an unknown locale is at best a nettlesome business. And human nature being what it is, no company can expect to bat 1.000 in relocating its entire personnel.

Faced with the problem of persuading its employees to transfer from Olean, N.Y., to Ferndale, Wash., however, Socony-Vacuum Oil executives are trying a new tactic. How well it pays off will tell when the roll call starts on those arriving in Puget Sound this week—and the immediate weeks ahead.

Simple Strategy: The basic idea was starkly simple: airlift an advance scouting party out to the new area to reconnoiter and report back its findings to fellow workers. Management was convinced that there's no argument quite as strong as seeing something for yourself. With a whole series of doubts wiped away, many employees—waver-ing in their decision—would swing over to the company's way of thinking.

Socony's scouting party was composed of four plant workers—elected by Olean employees—a management representative—and wives. Robert Ryder, a yield clerk at Olean, headed



"HOW MUCH for kids' haircuts?" queries Mike Harrington, who has seven to keep trimmed. Later he joined fun on Mt. Baker.





BARBECUE features salmon caught in Nooksack River by Lummi Indians.



HEADING HOME to report, Socony employees take train at Bellingham.

the group, which also included Michael Harrington, a pipefitter, Frank Donnellan, a refinery operator, Lawrence Johnson, a packaging clerk, and Frank Williams, assistant refinery manager.

The questions they asked at Ferndale were pertinent, penetrating. "Is there enough milk out there to keep 10 children fed?" one Socony employee wanted to know. Worried another, "Will it be legal for me to take my parakeets out to Washington?"

Housing conditions and rentals rated as top queries. But the scouts also looked into food prices and other living costs, taxes, hospitals, medical and dental services, churches, schools, fraternal organizations and opportunities for recreation.

Landing in Seattle, the task force

drove to Bellingham, Wash., where they toured schools and hospitals, looked at real estate, inspected the new Ferndale refinery.

Local residents turned out to welcome them at a salmon barbecue; Some attended church on Sunday, others climbed Mt. Baker, junketed up to Vancouver, B.C., and Seattle by train to glimpse scenic Puget Sound.

Immediate reaction to the expedition, was one of enthusiastic anticipation. When they returned to Olean the scouts, to a man, reported favorably on what they'd seen; and the contagion of their enthusiasm infected many of their fellow employees with the "let's-go-West" yen.

And Socony is enthusiastic, too. It managed to retain the skills of many experienced and valued employees.

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WIDE WORLD



WIDE WORLD

H-E-W'S MINTENER, LARRICK: In once walled-off agency, a new open-door policy.

Extra Entrance Added

Up to now, there's been just one way for industry people to take up their food, drug and cosmetic problems with Washington officials—namely, straight through channels in the Food & Drug Administration.

But this week, a new route opens up with the swearing in of Bradshaw Mintener as assistant secretary of Mrs. Oveta Culp Hobby's Dept. of Health, Education & Welfare.

To those who merely look at the H-E-W organization chart, Mintener is to be in charge of "federal-state relations." But to those close to the pulse of food and drug activities in Washington, it's no secret that much of his time will be spent on foods and drugs as the political counterpart of career civil servant George Larrick, new FDA commissioner (CW Newsletter, July 31).

Men of Experience: Both have much background in food and drug law administration—Larrick as an FDA employee for 31 years; Mintener as legal counsel for Pillsbury Mills for 21 years. Larrick is 52 years old, Mintener 53.

Timing of the appointments, too, points a close parallel. Before Charles W. Crawford made final his resignation as FDA commissioner, agreement had been reached (1) that his successor would be a career employee; (2) that Mintener was to be offered the job of assistant secretary; and (3) that the scope of this job would be broadened to include policy supervision of FDA.

Man Behind 'Miracle': Mintener

brings to his new office wide experience in food and drug law (he's chairman of products liability for the American Bar Assn.'s Food, Drug & Cosmetic Law Section); in administration (as chairman of Minnesota's "little Hoover commission" and the state's crime commission); and in politics (he spearheaded the "Minnesota miracle" of write-in votes for Eisenhower in that state's 1952 Presidential primary).

Observers list these points on which they feel Mintener will be especially valuable in supplementing the work of FDA's career officials:

- **Industrial.** Manufacturers and association men have had a difficult time getting to see Secretary Hobby or Under Secretary Nelson Rockefeller; when they do, they've found them unfamiliar with specific food and drug law applications. Mintener will give industry men a supra-FDA office to bring their complaints.

- **Decisions.** In controversial cases, it's hard for a career civil servant to make decisions. A politically appointed policy maker who nonetheless knows the general field he's supervising can make strong decisions on controversial subjects.

- **Arbitrariness.** Sometimes the charge is made that FDA is arbitrarily trying to regulate what a physician can and can't use in his practice of medicine. A top-level policy man can often see the pitfalls in a decision that looks o.k. to those who have been close to the subject.

- **Political.** Because of some allegedly arbitrary decisions, FDA has

had poor relations with a number of key congressmen—who control the purse strings. This is considered a main reason for the 11% budget cut during the past two years. Mintener probably won't be able to salve past wounds, but may help keep FDA from creating new antagonism.

- **Legislative.** The question of amending the food and drug laws will be up for Congressional scrutiny again next year. Mintener, as an "outsider" who's about to get an inside-government viewpoint, may be able to harmonize the conflicting positions. Though the Millers' National Federation—with which he has had close contact—is a major backer of the rigid, preapproval concept of regulation, Mintener is not now considered committed to any specific legislation.

It's regarded as a sure thing that Mintener and Larrick will work closely on general FDA policies. Larrick, too, is seen as more of a moderate in food and drug activities than some of his predecessors—thus may eventually be able to win Congressional consent to hire the additional factory inspectors he insists are needed.

In both these new officials, it appears that FDA is all set for an era of improved relations with both industry and Congress.

FOREIGN.

Sulfur/Argentina: A 13,000-ton order for crude sulfur has been awarded to U.S. and Ecuadorean exporters by Argentina's Administration of Military Factories (Dirección General de Fabricaciones Militares). Japanese, Italian, and Chilean competition lost out.

• **Ammonia/West Germany:** Knapsack-Griesheim AG, a successor company of the former IG combine, plans to build an ammonia plant in West Germany. Capacity: 20,000 tons/year. Also planned: a second elemental phosphorus furnace, which is expected to lift the company's total output to about 25,000 tons/year. The latter project, however, still awaits approval by Allied authorities.

• **Magnesium/West Germany:** Looking toward the day when the production of magnesium will again be permitted by Allied authorities, a new company has been founded in West Germany to lay the groundwork for eventual manufacturing activities. Cofounders: Knapsack-Griesheim A.G. and Farbenfabrik Bayer, A.G., of Leverkusen. The new fledgling: Elektron-Gesellschaft fuer Metallgewinnung.

West German demand for magnesium is now estimated at somewhat

U.S.I. CHEMICAL NEWS

Fall

★

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★

1954

NATIONAL DISTILLERS FORMS NEW CHEMICAL DIVISION

ATTENTION

National Distillers, U.S.I. Announce Change of Head Office Address

National Distillers Products Corporation, and U. S. Industrial Chemicals Co., a division of National, have announced the relocation of their head offices, formerly at 120 Broadway, New York 5, N. Y. The new address is 99 Park Ave., New York 16, N. Y. and the telephone number is OXford 7-0700.

Renew Taxfree, Specially Denatured Alcohol Permits

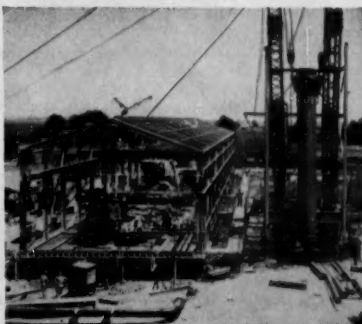
Now is the time for users of specially denatured alcohol to renew their basic permit (Treasury Department Form 1479) for 1955. It is also time for users of Taxfree alcohol to complete and file with the Assistant Regional Commissioner — Alcohol and Tobacco Tax Division — their application (Form 1450) for renewal of their Taxfree Alcohol permit for 1955. If you require forms or any assistance in their preparation, please call your nearest U.S.I. office.

Consolidation of All Chemical Activities Paves Way for Future Expansion in the Chemical Field

U.S.I. Continues as the Selling Organization for National Distillers' Chemical Products

All chemical activities of National Distillers Products Corporation have been integrated into a single Chemical Division, National officials announced recently. This consolidation is just one part of National Distillers' long range program for future growth and development in the chemical field. Other phases of the program include centralization of research at Cincinnati, Ohio, and a greater emphasis on bulk industrial chemicals — where National has competitive advantages by virtue of low cost integrated facilities well situated as to markets.

The new Chemical Division is enthusiastically carrying out the company's expansion program and by December 1954, it is estimated National will have a \$70 million investment in chemical plants with 85% of this capacity less than 5 years old.



A typical example of National's expansion plans is this ammonia plant being built at Tuscola, Ill. Capacity will be 60,000 tons/year.



Aerial view of gigantic National Petro-Chemicals plant at Tuscola, Ill. Located on a 500-acre plant site, its hydrocarbon extraction and fractionation units are the largest in the world. Further expansion of facilities at this location will include a polyethylene plant, an ammonia plant, an alcohol denaturing plant.



New "National Distillers Building" at 99 Park Ave. will house all of National's N. Y. Offices.

U.S.I. the Sales Organization

Integration of chemical activities will combine the operations of U. S. Industrial Chemicals Co. and National Distillers Products Corporation. U.S.I., however, will continue as the sales and distribution organization for National Distillers. The U.S.I. name will still be used for product lines and labels; and U.S.I. sales offices, division managers and salesmen will continue to serve their customers as before.

The Chemical Division will also carry on activities for National Petro-Chemicals Corp., but that company will maintain its corporate identity.

MORE

U.S.I. CHEMICAL NEWS

CONTINUED

Move Into New Offices

The Chemical Division is located in the new "National Distillers Building," 99 Park Ave., N. Y., to which it moved on August 16. All of National Distillers' and U.S.I.'s New York offices recently moved to this modern building.

Arrangement of offices and selection of equipment were made with maximum convenience and efficiency in mind. The latest in telephone equipment and a battery of teletype machines were installed, the latter linking sales offices and plants.

Expansion of Operations

National Distillers has already announced its intent to expand operations and facilities in certain fields. Other expansion plans will be announced at later dates. Present plans call for continuation and expansion in the following fields—

(1) **Metallic sodium and derivatives**, such as ethyl acetoacetate and the related compounds, the arylides, and isosebacic acid. Isosebacic acid, a new product developed by National's research laboratory, has properties similar to adipic acid and will find use in the production of synthetic lubricating oils, polyamides and other synthetic resins and plasticizers. Commercial production of isosebacic acid will start in 1955. National produces 50 million pounds of metallic sodium per year at its Ashtabula, Ohio, plant.

(2) **Raw materials for the fertilizer industry**, such as sulfuric acid, ammonia, and nitrogen solutions. The Company's four sulfuric acid plants have a capacity of over 1,000 tons per day. Ammonia production will be boosted to 60,000 tons per year by mid 1955.

(3) **Petrochemicals**, available through a 60% owned subsidiary, National Petro-Chemicals Corp. These products include ethyl alcohol, ether, and ethyl chloride. Polyethylene production is scheduled for early next year. Facilities have been modified to provide the extremely pure ethylene required for high quality polyethylene.

(4) **Alcohol, alcohol derivatives and solvents**. With synthetic ethyl alcohol from National Petro-Chemicals and with fermentation plants at New Orleans, La., and Anaheim, Calif., National Distillers expects to be completely integrated in alcohol and derivatives. New de-

Methionine Increases Riboflavin Yields

Methionine has been found to increase yields of riboflavin obtained through fermentation methods. There was a dependency of the organisms producing riboflavin on some part of the sulfur-bearing amino acid. Additions of methionine also brought about even greater yields of vitamin B₂ when supplemented with L-histidine.



Aerial view of National's sodium plant at Ashtabula, Ohio, which produces 50 million pounds of metallic sodium per year.

naturing plants will be built at Newark, N. J., and Tuscola, Ill.

(5) **Feed Supplements**. The company will continue to manufacture and market to the pharmaceutical and animal feed trade such products as methionine; Vitamins A, D₂ and K₂; riboflavin; calcium pantothenate; niacin; vitamin B₁₂; antibiotics; and distillery by-products.

(6) **Chlorine and caustic soda**. National Distillers has 2 plants at Huntsville, Ala., producing these heavy chemicals.

Research activities are being centered in Cincinnati, in a recently expanded laboratory building. A new pilot plant is also being built there. This new laboratory and pilot plant set-up will provide ample facilities for National Distillers' many continuing chemical research projects.

For more information on National Distillers' chemical products write to the Editor, U.S.I. Chemical News.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

A reusable aerosol container which can be refilled by the consumer has been announced. Carbon dioxide is used as a propellant and design features are said to make this pressure-type container adaptable for use with new compounds and package designs. (No. 1060)

New type carbon paper for pen or pencil reportedly produces fresh copy that cannot be smudged. Described as long wearing with improved manifold properties, it produces a number of legible copies with little pressure. (No. 1061)

Sealed-in decorative effects in compression molded plastic products such as laminated sheets, jar tops, and jewelry boxes now can be produced for the first time in this country by means of a new process. (No. 1062)

A package that prevents spoilage in transit of temperature-sensitive materials has been developed. Designed for shipping living tissue-culture cells, this thermally insulated package also can be used for pharmaceuticals and other items affected by temperature extremes. (No. 1063)

A silicone water repellent for masonry is said to be more effective on brick than any previous material. It reportedly retards cracking, reduces maintenance, and prolongs useful life and natural appearance of brick and concrete surfaces. (No. 1064)

A non-acid rust removing material can simultaneously strip paint, rust and primer from ferrous metal surfaces in one operation according to the manufacturer. Requiring only 2 simple steps—a dip and a pressure rinse—it eliminates need for multi-tank installations. (No. 1065)

A solvent-cleaner and odor suppressant is said to be highly effective either for dissolving and removing tars, gums, waxes, and oils or for controlling disagreeable odors from refuse areas, sewage plants, etc. (No. 1066)

A lacquer for architectural aluminum has excellent weather and ultraviolet resistance plus film toughness, clarity, and flexibility according to recent reports. (No. 1067)

A light stable polystyrene for use in light fixtures, signs, etc. reportedly offers light stability 8 to 10 times better than that of general purpose polystyrene but retains characteristic chemical and physical properties of the general purpose material. (No. 1068)

A furniture touch-up kit hides nicks and marks and makes it easy to do a professional job of blending with every wood shade. (No. 1069)

PRODUCTS OF U.S.I.

ALCOHOLS

Butanol (Normal-Butyl Alcohol)
Fusel Oil — Refined

Ethanol (Ethyl Alcohol)

Specialty Denatured—all regular and anhydrous formulas
Completely Denatured—all regular and anhydrous formulas
Pure—190 proof U. S. P., Absolute—200 Proof
Solox®—proprietary solvent—regular and anhydrous

ETHERS

Ethyl Ether, U. S. P.
Ethyl Ether, Absolute—A.C.S.

ACETONE—A.C.S.

ANSOLS

Ansol® M
Ansol® PR

ACETIC ESTERS

Butyl Acetate
Ethyl Acetate—all grades
Normal-Propyl Acetate

OXALIC ESTERS

Diethyl Oxalate

OTHER ESTERS

Diatel®
Diethyl Carbonate

INTERMEDIATES

Acetoacetanilide
Acetoacet-ortho-chloroanilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloroanilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate

FEED PRODUCTS

Calcium Pantothenate (Feed Grade)
Choline Chloride Products
Curbay B-G* 80
DL-Methionine (Feed Grade)
Niacin, U.S.P.
Riboflavin Concentrates
Special Liquid Curbay®
U.S.I. Vitamin B₁₂ and Antibiotic Feed Supplements
Vacatone® 40
Vitamin A, D₂, and K₂ Products

OTHER PRODUCTS

Anhydrous Ammonia
Caustic Soda
Ethylene
Liquid Chlorine
Metallic Sodium
DL-Methionine (Pharm.)
N-Acetyl DL-Methionine
Nitrogen Solutions
Propionic Acid
Sulfuric Acid
Urethan, U.S.P.

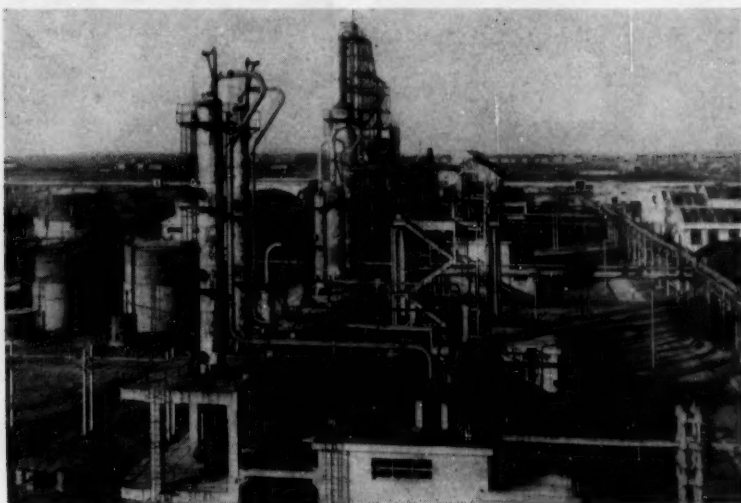
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U.S.I. Industrial Chemicals Co.

Division of National Distillers Products Corporation

99 PARK AVENUE, NEW YORK 16, N. Y.

BRANCHES IN ALL PRINCIPAL CITIES



AT FERRARA: Montecatini is adding additional polyvinyl capacity.

more than 6,000 tons/year, but during the last several months the pressure's been on for increased supplies—a condition that can be expected to increase in the immediate months ahead.

Plastics/Italy: Industry officials now estimate that by 1955 output of plastics in Italy will exceed 50,000 tons/year. Main increase will be registered by companies producing polyvinyl chloride—such as Montecatini (*see cut*)—which is enlarging current capacity. Target for 1958—60,000 tons/year—a fourfold increase within 10 years.

Cellulose Pulp/Mexico: Cellulosa Mexicana is building a plant at Tuxpan, Veracruz, on the Gulf of Mexico, to produce cellulose pulp from bamboo—a raw material abundant in the region. Already spent on construction: \$400,000.

Expansion/Jordan: Two late developments in expansion of Jordan's embryo chemical industry:

- The Jordan Development Board is considering a Point Four-inspired plan to set up a \$4.5-million company to exploit the mineral resources of the Dead Sea. Potash and bromine are the two minerals present in the greatest quantities, although an array of other elements is available in exploitable quantities.

- The Belgian Bank of International Exchange has offered Jordan a \$800,000 credit against purchase of Jordan phosphates. The credit will be used to expand Jordan's phosphate deposits, and to provide transportation links (with Belgian-purchase railroad equipment) to Aqaba—Jordan's grow-

ing port on the Red Sea. Currently, details in the agreement are being ironed out.

Penicillin/India: The government of India has set up a four-man technical committee to advise it concerning the production of penicillin. First matter to come up for consideration: construction progress on the government's new penicillin plant at Poona—scheduled for completion by November. The government is also considering the advisability of spending 1 million rupees for a pilot plant to aid in antibiotic research on which it will seek the committee's advice.

Expansion/Mexico: Mexico's chemical industry has been one of that country's fastest growing industries in the past two years, according to reports of the government's finance agency, Nacional Financiera. Expansion has been most marked in sulfuric acid, caustic soda, sodium sulfate, hydrogen peroxide, fertilizers and coal derivatives.

Mexican High Flyer

Mexico's new \$25-million Salamanca lubricants plant, scheduled for splashy opening ceremonies this month, will eventually produce 3,000 bbl./day over and above estimated domestic requirements, according to the government's oil monopoly, Petroleos Mexicanos. Initial production: 2,500 bbl./day; eventual capacity: 4,000 bbl./day.

Located in the northern central state of Guanajuato, the plant was built by Arthur McKee Co., Cleveland, to be operated in conjunction with a refinery, already in operation, which

turns out 35,000 bbl. of gasoline/day. It should add a potential \$80,000/day to Petroleos Mexicanos coffers.

But the products due to come off the line are not solely limited to lubricants. The plant's also designed to turn out 60,000 kilos of paraffin waxes daily plus asphalt.

The immediate effect of this additional production on importers of lubricants can not, of course, be accurately predicted. But company management points to the fact that (despite predictions to the contrary) Petroleos Mexicanos is still selling gasoline at its own devaluation prices—giving the Mexican consumer what is undoubtedly the cheapest gasoline in the world, priced at 12¢/gal. If prices on lubricants, paraffin are similarly scaled, it could mean quite a rush on Mexican-produced materials in world markets.

LEGAL

Contamination Cases: More and more frequently, efforts to abate both air and water pollution are taking the form of compulsion under the law. Among latest instances of this kind of litigation:

- At Winter Haven, Fla., a decision is likely to be announced this week in a lawsuit over odors allegedly emanating from a citrus canning plant there. C. T. Fuller, president of Lake Shipp Heights Community League, wants the court to order the Snively Groves cannery to install a waste disposal system that will eliminate the odors complained of. Snively contends that its present treatment system is the most modern now available, and that further advances will depend on research work now under way at University of Florida.

- If you can't hit the target with a rifle, try a shotgun. That's the plan being studied this week by James Flood, attorney to the Staten Island, N.Y., Air Pollution Assn. Noting that previous legal moves against industrial plants have failed because persons injured by fumes could never prove exactly which plant the particular contaminant was coming from, Flood suggests that in the next attempt, all of the principal manufacturers in the neighborhood be named as defendants. "Then," he says, "it would be up to those companies to fight it out among themselves as to who's responsible." His association feels that New Jersey industries are to blame for Staten Island's air pollution woes.

- **Antitrust Action:** A general warning from Asst. Attorney General Stanley

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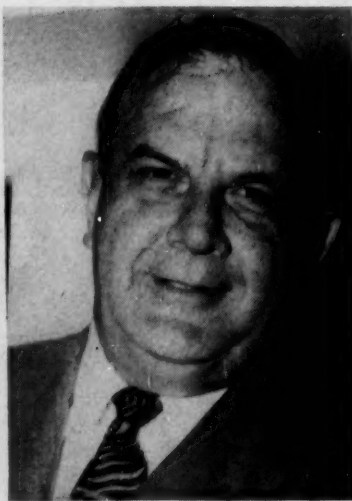
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BUSINESS & INDUSTRY



WIDE WORLD



WIDE WORLD

GOVERNMENT'S BARNES, KUYKENDALL: On the spot in mergers, gas pricing.

Barnes to all companies that have been planning mergers (*CW Newsletter*, Sept. 4) has chemical company lawyers looking up pertinent sections of the Clayton and Sherman Acts this week. Barnes says the Justice Dept. is "seriously concerned" about recent merger trends, particularly mergers involving large companies. The Federal Trade Commission—which shares jurisdiction over this field with the Justice Dept.'s antitrust division—now is testing the 1950 antimerger section of the Clayton Act in the Pillsbury case. Barnes' statements indicated that even before that test case has been decided, his agency might initiate some new actions. The anti-merger section—which Barnes is using as a yardstick to measure legality of recent chemical mergers—prohibits one company's acquisition of another firm's stock or assets if the effect might be "substantially to lessen competition, or to tend to create a monopoly," in any line of commerce and in any section of the country.

Protests Pile Up: This week is the deadline for filing of exceptions to the Federal Power Commission's recent order covering regulation of independent producers' wholesaling of natural gas to interstate pipelines; and as of last week, the objections were piling up. FPC Chairman Jerome Kuykendall has hinted that the commission will start considering these protests late this week. The FPC order stemmed from the U.S. Supreme Court's June 7 decision in the Phillips case.

Silicone Settlement: Wurdack Chemical Co., St. Louis, says it has settled its patent suit filed nearly three years

ago against Dow Corning Corp., Midland, Mich., and Ranetite Co., St. Louis. Wurdack won't divulge the details of the settlement, but says its silicone water repellent products now will be available throughout the U.S. and Canada. The Wurdack products are for treatment of masonry walls to keep water from seeping in.

LABOR

Employment Shrinkage: Industrial employment definitely has dwindled since late summer last year when job totals were at a peak; but chemical employment has proved much more stable than that of most other manufacturing industries. According to latest figures from the Bureau of Labor Statistics, total employment in the chemical industry shrank by 4.7% from Sept. '53 to June '54 while the corresponding drop for all manufacturing lines was more than 9.7%. Similarly, while the chemical industry is using 6.6% fewer production and maintenance workers, the all-manufacturing slippage has been 11.7%. Recent news notes about employment ups and downs:

- Employment is rising in New York state, according to Gov. Thomas Dewey, who cites as proof a nearly 30% drop in the number of persons claiming unemployment benefits. Illinois reports that its nonfarm employment is 2,943,700, compared with the year-ago level of 3,096,100; and adds that from June to July there was a decrease of about 500 in the state's chemical employment. New Jersey's unemployment insurance payments are expected to be the highest since 1946; payments during the first six

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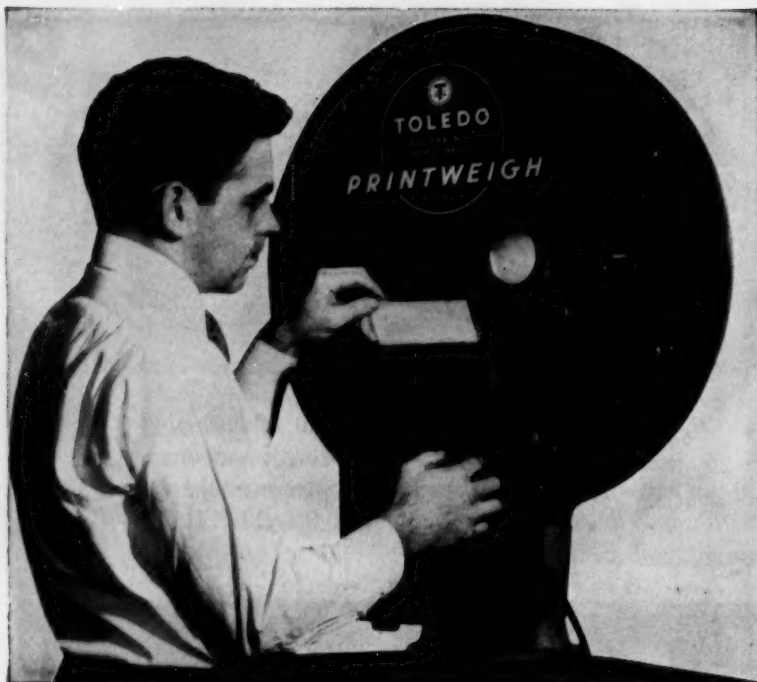
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TOLEDO

HEADQUARTERS FOR SCALES

B & I



WIDE WORLD

REP. BENDER: On secondary boycotts, he collects data for House probe.

months of this year exceeded the 12-month total for 1953.

- Chemical employment in the vicinity of Wilmington, Del., stood at 27,655 last month, compared with 28,664 in Aug. '53 and 27,320 in Aug. '52.

- At Brewster, Fla., American Cyanamid will reduce its phosphate operations from a 7-day to a 5-day work week, and about 125 employees are to be laid off.

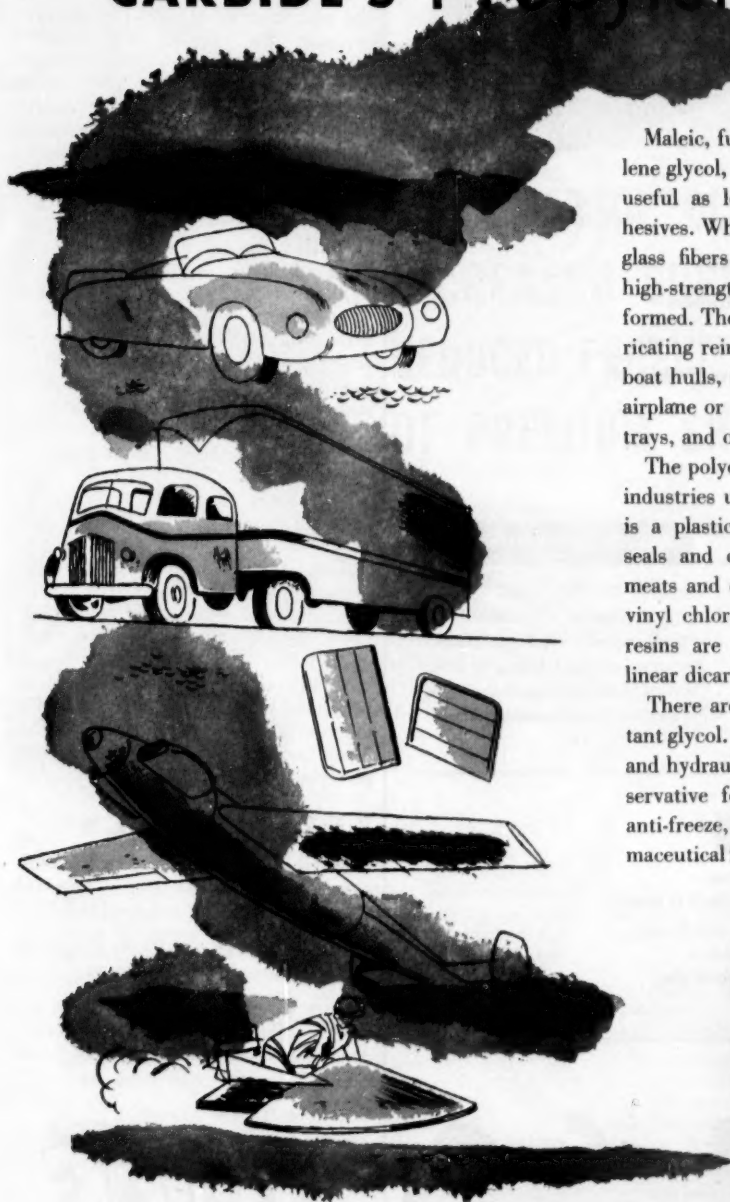
- The recent rubber strikes and the pinch of seasonal buying of fertilizer products have forced cutbacks at two Du Pont plants. About 200 persons are being laid off at the Spruance, Va., rayon plant and the work week will go from 39½ to 32 hours until the tire companies resume normal purchasing of rayon; and between now and Jan. 1, about 400 persons will be laid off at the Belle Works near Charleston, W. Va. These moves will put employment at just less than 2,000 at Spruance and about 3,400 at Belle. Du Pont says it sees a chance for increased fertilizer sales and output by January.

Battle on Boycotts: Opposition to the practice of "secondary boycotts" will go into the Congressional investigation phase this autumn, starting in Ohio. That's the promise of Rep. George Bender (R., Ohio), chairman of a House subcommittee on labor racketeering, whose staff is already at work in Cleveland gathering information for the hearings. Bender says one example of the cases to be probed is that of a sheet metal company that has a collective bargaining agreement with the CIO Steelworkers but which

Formulate polyester resins

WITH

CARBIDE'S Propylene Glycol

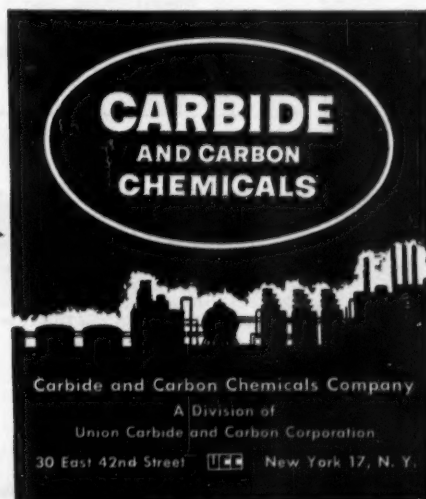


Maleic, fumaric, or similar acid esters of propylene glycol, polymerized with vinyl monomers, are useful as low-pressure laminating resins or adhesives. When polyester resins are fabricated with glass fibers or fabric—lightweight plastics with high-strength and superior electrical properties are formed. These are important properties when fabricating reinforced plastics for automobile bodies, boat hulls, fuel oil tanks, washing machine parts, airplane or refrigerator parts, bathtubs, furniture, trays, and other structural materials.

The polyester resin field is but one of the many industries utilizing CARBIDE's propylene glycol. It is a plasticizer for phenolic resin bonded cork seals and crowns and for cellulose casings for meats and cheese. Resinous plasticizers for polyvinyl chloride, polyvinyl acetate, and copolymer resins are prepared from propylene glycol and linear dicarboxylic acids.

There are other industries that use this important glycol. For example, it is a component of brake and hydraulic fluids, a hygroscopic agent and preservative for tobacco, an industrial coolant and anti-freeze, and a humectant and solvent for pharmaceutical formulations and cosmetic preparations.

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B & I

is said to be threatened with loss of sales because of an AFL union's pressure on customers. Bender invites all employers who have been injured by similar tactics to write to him.

Strikes Settled: A number of major strikes affecting the chemical process industries have been settled, but on the whole, strike activity has been increasing this summer. The government figures that worktime lost on account of labor-management disputes rose to nearly 3.6 million man-days during July—highest such figure since July '53. Among recent settlements:

- Kennecott Copper Co. set the pattern for the copper industry by giving its 10,000 employees represented by the International Union of Mine, Mill & Smelter Workers a 5¢/hour wage increase plus an additional 3.6¢ in health and welfare benefits and a rise in shift differentials averaging out to another 0.4¢/hour. A day or so after ending the two-week strike against Kennecott, Mine-Mill reached agreement with American Smelting & Refining Co., averting a threatened strike.

- It looks like a 6½¢ hourly increase in the rubber industry this year. That's the figure on which Goodyear and the CIO Rubber Workers compromised, ending a 51-day strike in the company's 10 plants. The union had asked for a 7½¢ boost, Goodyear had offered 5¢.

- Still on is the partial strike started by about 1,000 members of the AFL Operating Engineers at Beaumont, Tex. Several chemical construction projects have been delayed.

KEY CHANGES . . .

Edward F. Morrill, to general manager, Petrochemical Div., Standard Oil Company (Ohio), Cleveland.

Glenn Holder, to president, Maryland Pharmaceutical Co., Baltimore.

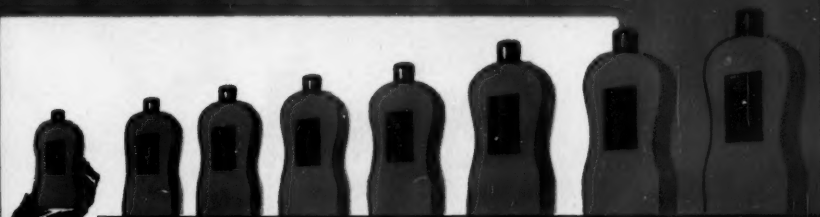
Robert P. Parker, to director of research, Pearl River Laboratories, American Cyanamid Co., New York.



THE UNITED WAY

**CASE
HISTORY**

Another product improved by an Emery Fatty Acid



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INCREASED SHELF LIFE,
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OF PREMIUM SHAMPOO!**

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THE PROBLEM of increased shelf-life for this manufacturer's premium shampoo was quickly solved when Emersol 233 LL Elaine was substituted for an ordinary double-distilled oleic acid. After a prolonged aging test, the shampoo containing Emersol 233 had the same light color, pleasant odor, viscosity, clarity, and sudsing characteristics as the day it was made. Furthermore, perfume costs were reduced since there were no longer rancid odors that required masking.

To You Who Don't Make Shampoo—

Even though your product may not be related to shampoos or soaps, the outstanding *color stability*,

oxidation stability and *resistance to rancidity* of Emersol 233 can make your product better, stay better longer.

These advantageous stability characteristics are also inherent in Emersols 220 and 221 White Elaines, however, to a lesser degree, but, still far superior to competitive double-distilled oleic acids.

The greater consumer appeal that these Emersol multiple-distilled oleic acids impart to your product will make them readily accepted . . . easier to sell. And since they cost no more than competitive grades, it will *always* pay you to buy Emersol multiple-distilled oleic acids.



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PRODUCTION



1 OPEN PIT mine at Willsboro provides wollastonite, promises enough for 250 years at present production rates.



2 AT NEW PLANT, Cabot starts the ore, trucked 1½ miles from the quarry, on its way through modern process setup.

Proved Land of Plenty

New plant, modern methods bite into large wollastonite deposit in New York uplands.

Industrially a comparative newcomer, the material (calcium metasilicate) is carving out a big market niche in ceramics, paints and reinforced plastic.

Three years ago, Godfrey L. Cabot, Inc., a big name in carbon black, took a big interest in white, acquired a preferred ownership position in Willsboro Mining Co. (CW Newsletter, June 23, '51), which held an option on land in Willsboro, N.Y., containing reserves of

wollastonite (calcium metasilicate). At the time, the land held one plant and one million tons proved wollastonite reserves. Last month, reserves had been proved to 4 million tons plus, conservatively estimated to 15 million tons—enough for 250 years' produc-

tion at present rates; and atop the site sat Cabot's newly opened \$1,790,000 mill geared for 60,000 tons/year output.*

The plant, host last week to CW's narrative camera, evolved from earlier operational experience, recent pilot-planting and research. Top considerations in design of the new plant were operational flexibility and ability to

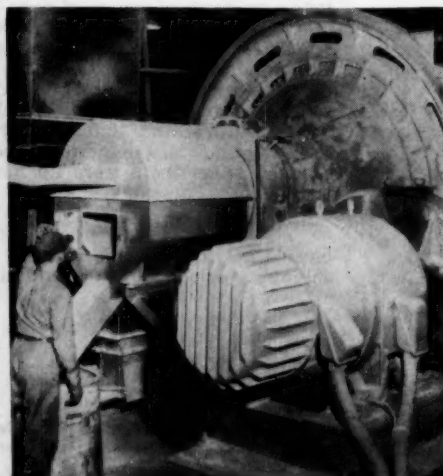
* Actually, as consultant engineer Raymond Laddoo points out, this figure represents a weighted average; the coarser grades can be turned out at a faster clip, the finer grades at a slower pace.



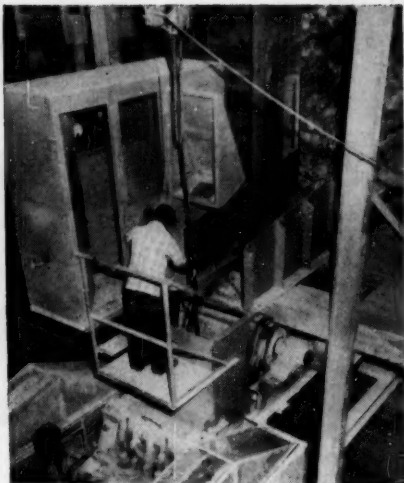
6 BATTERY OF SCREENS sorts accepted material into four cuts.



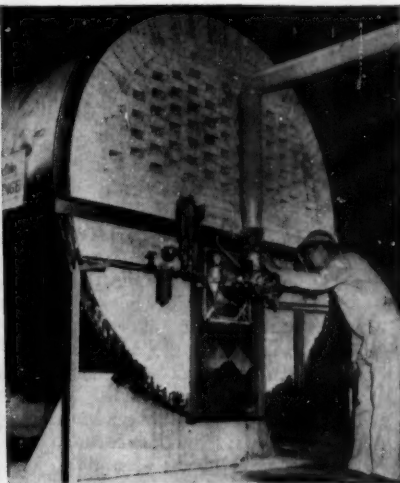
7 MAGNETIC SEPARATORS process cuts, remove garnet and iron waste.



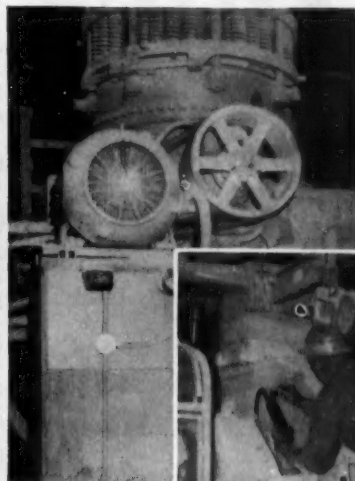
8 PURE wollastonite feeds to pebble mill where it is finely ground.



3 FROM dump bin, conveyor feeds lump ore into a jaw crusher.



4 ROTATING oil-fired dryer then dries ore to 0.5% moisture.



5 ORE is reduced in gyratory crusher, further reduced by roll crusher.



expand. The mill is equipped for complete mechanical handling; and, built like a sectional bookcase, it can be added onto whenever the demand arises.

Operations are essentially simple: Ore is trucked to the plant, fed into the jaws of a crusher, dried and screened. Magnets remove garnet and diopside by-products after which the purified wollastonite is ground in a pebble mill, sorted according to size by air separation. Finally, the white powder is bagged, conveyor-fed to waiting trucks and boxcars.

Mill No. 1 (the original wollastonite plant at Willsboro) was reconstructed

by Cabot, served as a pilot plant, helped work out, among others, some problems of beneficiation. At present, it is producing varied outputs of pilot-plant material and experimental grinds, is available for stand-by production.

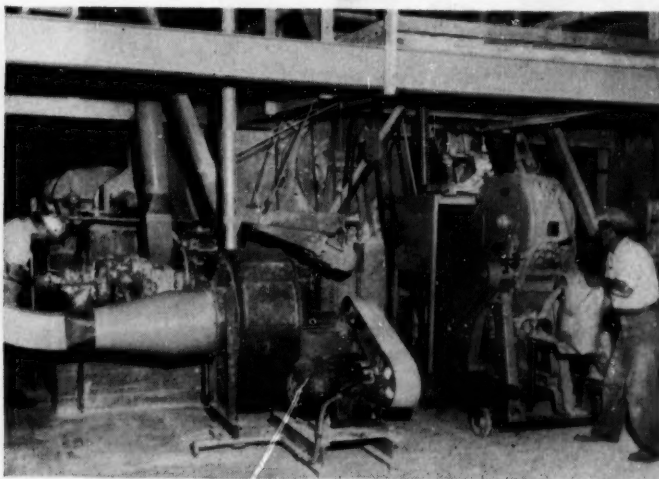
White vs Black: Output from the new mill is classified (with some duplication of grading) nine different ways by Cabot:

- P-1, P-4 for use as inert extenders in house paint, interior flats and semi-glosses, primer surfacers, and latex. After two years of evaluation, says Ladoo, wollastonite has gained acceptance mostly in interior paints; evalua-

tion period for exterior applications has three more years to go.

- C-1, C-6, C-11, C-14, and C-101 to impart glaze and body to ceramics. Wollastonite, it is said, speeds firing of tiles, reduces warpage, shrinkage and moisture expansion, increases strength and shock resistance. Moreover, a ceramic grade shows promise as a low-cost, low-loss electrical insulator.

Although the ceramic market is just



9 AIR SEPARATORS uniformly sort pebble mill discharge, return oversize for further grinding.



10 AIRSLIDES carry material from bulk storage bins to a four-valve packer for "on demand" bagging.

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PRODUCTION

beginning to break, together with paints it constitutes the two largest current wollastonite outlets.

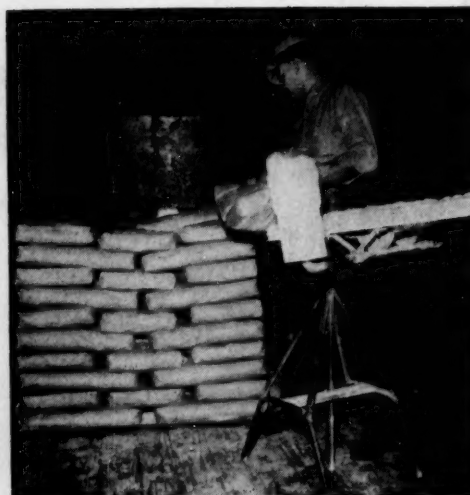
• P-1, F-1 for service as mineral fillers for polyester resins. Developed only within the past year, this application hangs on the mineral's needle shape. While wollastonite is naturally acicular, the characteristic can be accentuated by grinding. Fiber lengths can be brought to 15 times the diameter (in paint grades the ratio is about 4 to 1), thus serve to reinforce plastics.

Figuring in other hot applications (still under wraps), Ladoo pegs the wollastonite market at \$5 million/year 5-10 years hence. But, he says, it's like a new-born baby—you're not sure what it can do.

Three years ago, the big question on wollastonite was: How does it stack up (against carbon black) as a reinforcing agent for rubber? After three years' research, the answer is: it doesn't seem suited for rubber. For one thing, it isn't fine enough; and while wet-grinding will bring particle size down fairly fine, it is an expensive procedure. But, says Cabot, there is no reason why wollastonite would not be suitable for certain specialties.

Competitive Control: For the nonce at least, Cabot, with its New York campsite, seems well in control of the wollastonite scene. The deposit in Kern County, Calif.—worked by Johns-Manville during the '30s—is economically played out; a small reserve (about 200,000 tons) at Death Valley hasn't yet spiced anyone's interest; and 14 other outcroppings in California seem unpromising.

One wollastonite deposit at Midland, Calif., tests high on reserves, is being worked by California Limestone

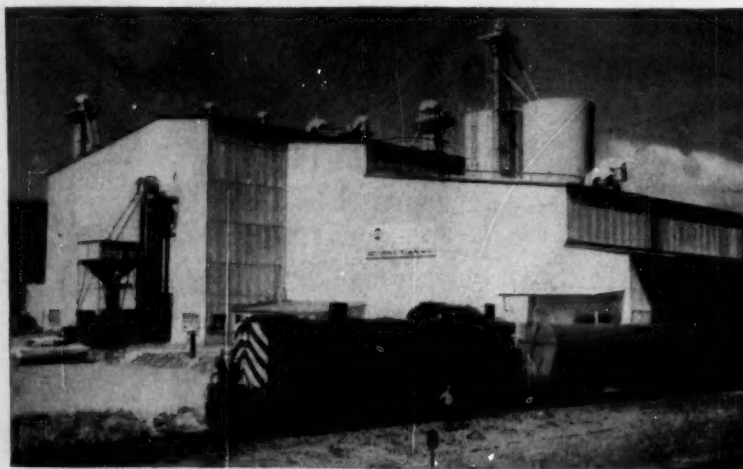


11 FILLED BAGS pass through flattener onto gravity-run conveyor.

Products (Beverly Hills) but principally for manganese content. CLP has been sending sample quantities of wollastonite to potential consumers since 1952 and is currently working on market development.

Prime California outlet for wollastonite has been in the production of mineral wool, wherein the crystals are melted, blown up for use as insulation. At the present time, producers are using slag from Montana copper smelters in place of the mineral.

Meanwhile, although current markets have yet to grow into the 60,000-tons/year size, they are developing. If Cabot has guessed right, wollastonite will shortly be a major raw material in many different fields. And it will be a big hunk of pie for just one major producer.



12 FROM THE CONVEYORS, bags are fed through lift doors into waiting boxcars and trucks, shipped as unitized loads to consumers.

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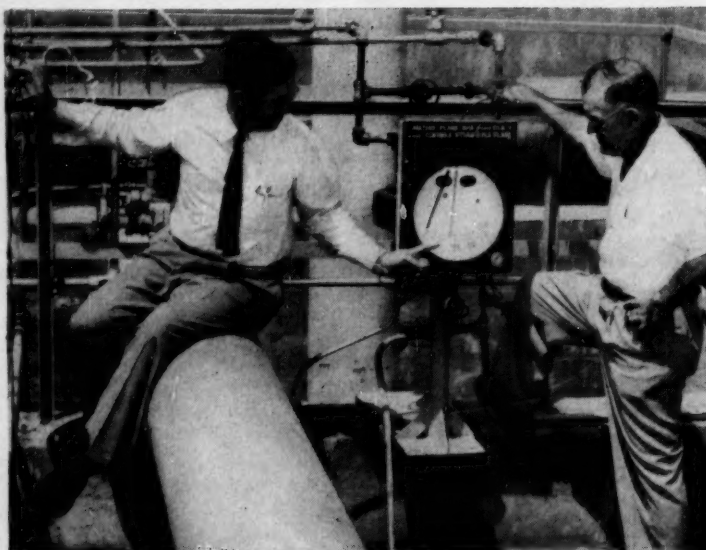
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TEMPLETON WITH FLOW CHART: A small step over a big hurdle.

New Meter Counts Losses

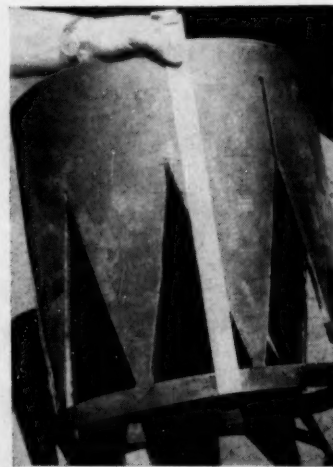
It's almost axiomatic that before you can start doing something to reduce a loss, you have to find out how much it is that you're losing. And that was one of the big hurdles in Standard Oil's all-out war on flare losses at its Baton Rouge refinery: it simply didn't have a satisfactory means of measuring the amount of gases that were lost.

Many had tried to develop an instrument to do the job, but for one reason or another none was completely successful. Then Hugh Templeton, of Standard's Chemical Technical Service department, invented a relatively simple gadget. The invention was turned over to the Standard Oil Development Co. and the device was modified for commercial operation.

Templeton (above) is pointing proudly to the flow chart which depends on his simple device (right). This is how it works:

The cylindrical shell with the inverted V-slots is kept immersed in water. Any gas that's going to the flare has to bubble through these slots. But in so doing it has to force down the level of the surrounding water. The water level then varies in direct proportion to the quantity of gas that's being flared.

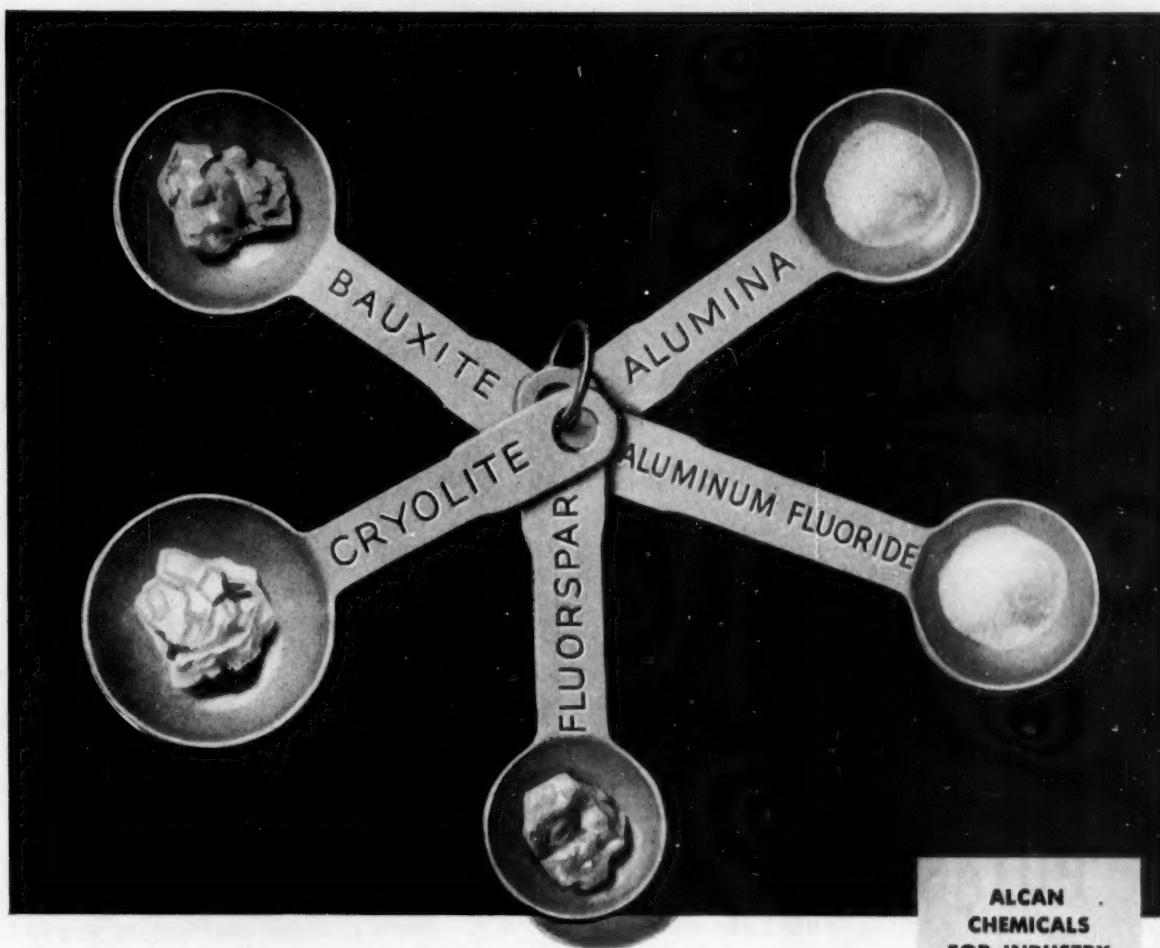
A meter placed in the tank measures the depth of the water level at the slots. This can, of course, be calibrated to give a direct reading of the amount of gas going to the flare. And because of the shape of the weirs, the meter can record any gas flow—from a small



KEY: As gas goes up, level goes down.

leak in a safety valve to a release of gas from a big unit.

This is only a small part of the work now being done by Standard and other refiners to get the most out of the oil being processed. At Baton Rouge the work is being done by the Oil Conservation Department. There, it's concentrating on flare losses, feels that it has chalked up an admirable record in cutting them. The instrument for measuring the losses was naturally only the first step. But it was an important one—as a means of determining what work had to be done and as a means of measuring progress after the work got under way.



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PRODUCTION.

Metal Mutation

From the Navy's Bureau of Ordnance came word last week of a new fibrous glass-reinforced structural material. Government workers, currently busy with development of the product, haven't yet found time to name it.

Already having shown its value for certain military applications, the Navy is pinning high hopes on its commercial potential, is seeking industrial participation in further development work on the product. Best bet: tubing for the chemical and oil industries.

Elemental Cleavage: Normally bonded with resins and organic substances, fiber glass has found an ever-widening market in the process industries, run into some structural limitations. The new material, says Ordnance, compares favorably with the standard product: it has an improved strength-weight ratio, seems suitable for higher temperatures, and shows high corrosion resistance.

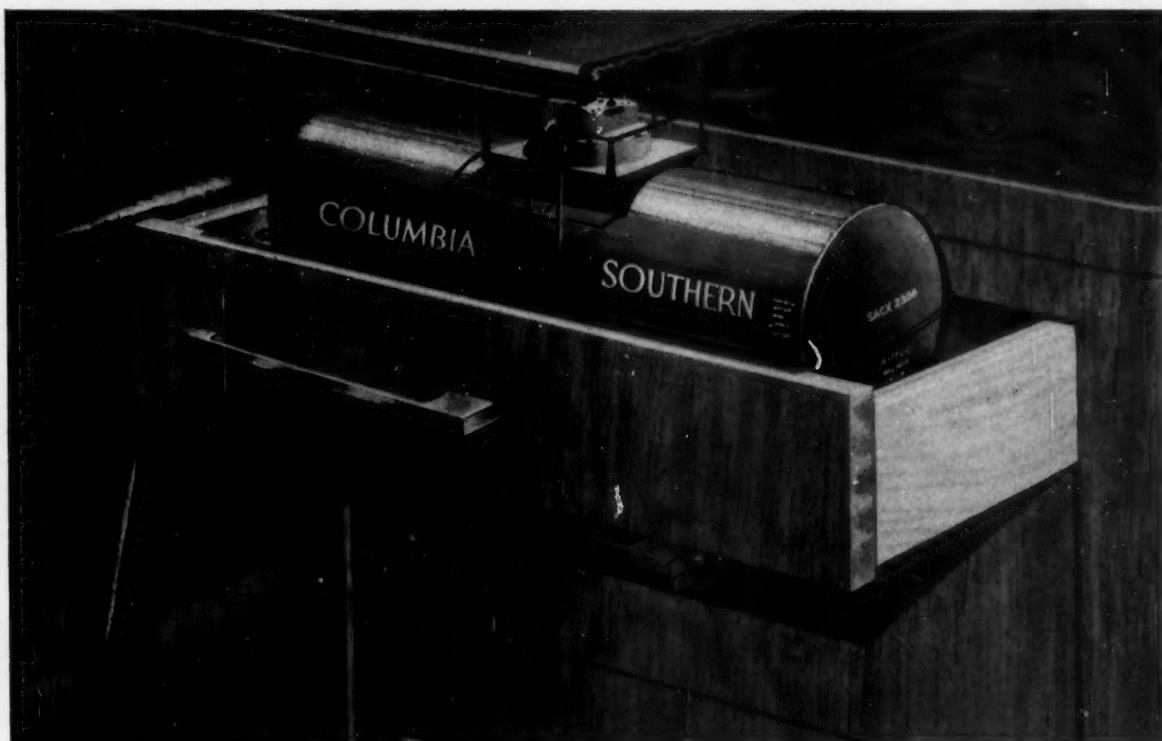
The process used to make the new product substitutes inorganic substances and metals for the resins and organic materials, starts with the formation of fiber glass filaments in the standard refractory furnaces and bushings. But as the filaments emerge from the furnace at high speeds, they are individually coated with inorganic and metallic substances. (Already tried on for size: iron, nickel, molybdenum, aluminum, zinc, lead, tin, copper.)

Under controlled heat and pressure, the coated fibers are later bonded and compacted into laminates or formed in tubular shapes. In the new operation, the use of conventional flux materials is optional.

Introduction of the new fibrous glass-reinforced material at a time when the rosy hue seems to be rubbing off somewhat from the outlook for reinforced plastics (CW, Oct. 31, '53, p. 61) couldn't prove more opportune, could help the plastics industry regain lost ground.



THE UNITED WAY



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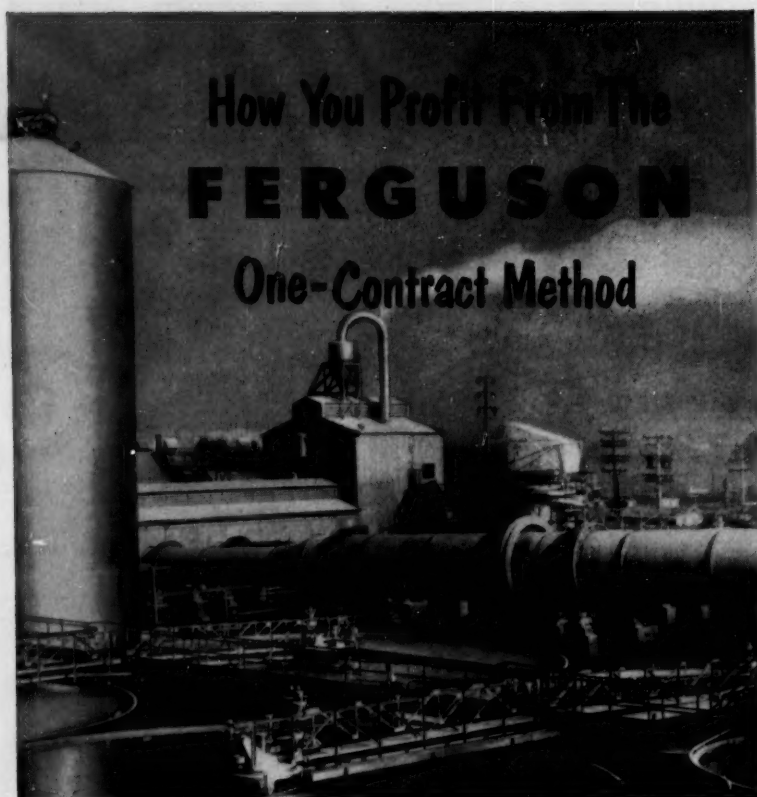
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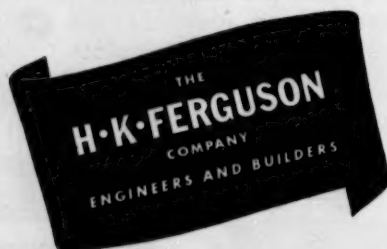
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PRODUCTION.

EQUIPMENT

Net Weigher: An automatic net weighing machine designed for all types of free-flowing material is the latest offering of Exact Weight Scale Co., Columbus, O. The unit comes with a load discharge timer that controls bucket discharge and a counter that records the number of weighings, shuts off the operation after a preset number of loads.

● **Vacuum Seal:** A seal-off valve that is said to avoid the awkwardness of standard vacuum seals has been devised by R. Richards of the National Bureau of Standards. Designed so that its handle and stem can be readily removed and used with any number of seal off seats, the valve leaves only a closed seat on the evacuated apparatus, thus protects the vacuum system from the atmosphere at all times and at the same time avoids the bulkiness of a complete permanent valve.

● **Notes on Noise:** In its latest Health Bulletin (Aug. '54), Connecticut takes cognizance of the industrial noise problem; Senior Industrial Hygiene Engineer Louis Proulx, Jr., discusses "Industrial Noise as an Occupational Health Hazard." Proulx concludes "... industrial noise will take its place among the other environmental factors requiring control..."

● **Burgess-Manning Co.** (Libertyville, Ill.), apparently following a similar line of thought, last week introduced its WSS Water Separator Snubber. A Janus-type gadget, claims B-M, the unit extracts water from vacuum pump exhausts, simultaneously reduces noise of the gas discharge to ear-comfort level.

● **Closed Circuit:** Diamond Power Specialty corp. (Lancaster, O.) is marketing its Series 400 UtiliVue camera for closed circuit telecasting. The camera, distributed by Graybar Electric Co., has all controls, power supply and voltage regulation built in, carries its own enclosed automatic illumination compensation.

● **Combination Meter:** Becoming more control-engineering conscious all the time, the chemical process industry is now offered a wide-strip electronic recorder that, says the manufacturer, The Bristol Co. (Waterbury, Conn.), measures and records both current and voltage simultaneously on one chart. Designated the Bristol Dynamaster electronic potentiometer, the unit is claimed to have an accuracy within 1% and a sensitivity of 0.05%.



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ACTS

ETHYLENE GLYCOLS

HYDRAZINE AND
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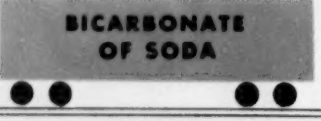





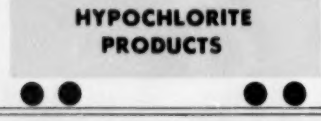




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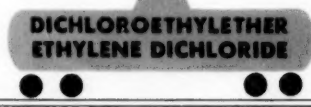




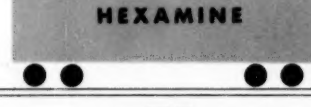



PRODUCTS

ETHYLENE DICHLORIDE

SODIUM METHYLATE

DICHLOROETHYLENE

PRODUCT	DESCRIPTION	SHIPPING DATA
	Anhydrous: refrigeration grade (99.98%), commercial grade (99.5%); Aqua: 26° Bé. and U.S.P.	26-ton tank cars from Lake Charles, La., Niagara Falls, N. Y., Morgantown, W. Va. Aqua: 8,000-gal. tank cars, Niagara Falls.
	U.S.P. powdered and granular; miller's special; fine.	100-lb. moisture-proof paper bags from Saltville, Virginia.
	Carbonic gas and dry ice.	20-lb. and 50-lb. net cylinders, tank cars and tank trucks; 55-lb. blocks from Saltville, Va., and 15 Mathieson warehouses.
	50% and 73% liquid; 76% solid, large and small flake, granular, ground, powdered.	8 and 10,000-gal. tank cars and standard drums from Lake Charles, La. (also barges and tankers), Niagara Falls, N. Y., Saltville, Va., McIntosh, Huntsville and Anniston, Ala.
	Liquid.	16, 30 and 55-ton tank cars, multi-unit cars (15 one ton units) from Niagara Falls, N. Y., Huntsville and McIntosh, Ala., Saltville, Va., Arvida, Quebec.
	Purite: 2-lb. soda ash pigs for foundry applications; PH-Plus: ½-lb. and 2-oz. soda ash cakes for water treatment.	100-lb. bags from Saltville, Va.; Purite also in bulk carloads.
	Hydrazine (N ₂ H ₄), hydrazine hydrate, mono- and dihydrazine sulphate, and many other compounds.	Liquids: 30 (240-lb.) and 55-gal. (440-lb.) drums; hydrazine salts: 200-lb. drums and 20-lb. pails from Lake Charles, La.
	HTH: calcium hypochlorite (70% available chlorine), granular and tablet form for water and sewage treatment; Lo-Bax: for dairy sanitation; plus a complete line of laundry bleaches.	100-lb. drums and smaller units from Niagara Falls, N. Y.
	Synthetic, prilled (not less than 99.5% sodium nitrate).	100-lb. multi-walled paper bags (palletized loading optional) and bulk cars (box or hopper) from Lake Charles, La.
	60% HNO ₃ .	Tank cars and tank trucks from Lake Charles, La.
	58% Na ₂ O: light, coarse, dense—standard and special.	100-lb. multi-walled paper bags and bulk carloads from Saltville, Va. and Lake Charles, La. (also barges and ocean steamers).
	Textone: for textile processing; C2: for superbleaching of paper pulp; Technical: for water treatment and general use.	100-lb. drums from Niagara Falls, N. Y.

PRODUCT	DESCRIPTION	SHIPPING DATA
 <p>SULPHATE OF ALUMINA</p>	Activated Alum Brand—designed for use in the field of water and sewage treatment.	100-lb. paper bags from Baltimore, Md.
	Refined roll brimstone; refined flour; sublimed flowers U.S.P.; commercial flour; rubbermakers grades: conditioned, oil-treated, wettable, etc.; granular.	Barrels, paper, burlap and osnaburg bags from Houston, Texas.
 <p>SULPHURIC ACID</p>	60° Bé. (77.67% H_2SO_4); 66° Bé. (91.19% H_2SO_4); 98%, 99% and 100% H_2SO_4 ; oleum 20% (104.5% H_2SO_4).	Tank cars from Baltimore, Md. (also tank trucks, transports, barges), Little Rock, Ark., Bossier City, La., Beaumont, Port Arthur and Pasadena, Tex., Palmerton, Pa.
 <p>DICHLOROETHYLETHER ETHYLENE DICHLORIDE</p>	Solvent for fats, oils, waxes, gums, tars, and resins; extractant for alkaloids, vitamins, hormones; used in fumigants, cleansing agents, herbicides.	4, 8, and 10,000-gal. tank cars, compartmented tank cars, 55-gal. drums from Doe Run, Ky.
	Conditioning agents and lubricants for textiles, humectants for tobacco, gas dehydration, humectants for cork, resin plasticizers.	4, 8, and 10,000-gal. tank cars, compartmented tank cars, 55-gal. drums from Doe Run, Ky.
	Synthesis of surface active agents and chelating agents; forms resinous polymers with formaldehyde resin systems.	8 and 10,000-gal. tank cars, tank trucks, 55-gal. drums (430-lbs. net) from Morgantown, W. Va.
	Engine coolant, industrial explosives, cellophane, adhesives, hydraulic fluids, resins, plasticizers, electrolytic condensers.	4, 8, and 10,000-gal. tank cars, compartmented tank cars, 55-gal. drums from Doe Run, Ky.
 <p>ETHYLENE OXIDE</p>	Production of acrylonitrile, acrylate esters, ethanalamines, fumigants, surfactants, polyglycols.	10,350-gal. tank cars and drums from Doe Run, Ky. ICC Spec. 104 AW; red shipping label.
 <p>HEXAMINE</p>	Hexamethylenetetramine, $(CH_2)_6N_4$; convenient source of water-free formaldehyde and amino activity.	100-lb. drums and 80-lb. moisture-resistant bags from Morgantown, W. Va.
	Intermediate in the manufacture of formaldehyde, resins; engine coolant and fuel; an excellent solvent.	8 and 10,000-gal. tank cars, compartmented tank cars and drums from Morgantown, W. Va. Red shipping label.
	Poly-G 200, 300, 400, 600; humectants and softening agents, copolymers and plasticizers, chemical intermediates.	55-gal. (500-lb. net) resin-lined, non-returnable drums from Doe Run, Ky.
	Production of insecticides, perfumes, soaps, optical bleaches, pharmaceuticals; catalyst to upgrade fats and oils.	50 and 200-lb. drums and 10-lb. pails (yellow shipping label); 25% solution in 55-gal. drums from Niagara Falls, N. Y.

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SULPHATE OF

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RESEARCH

New Boost for Sugar

Prospects for sucrose as a significant chemical raw material brightened this week with news of a practical process to make detergents and emulsifying agents from sucrose and glycerides. And in laboratories around the hemisphere, other sugar utilization projects are closing in on a covey of promising applications.

Under Foster D. Snell and Lloyd Osipow, research sponsored by Sugar Research Foundation, Inc. (New York) has yielded sucrose monoesters which are colorless, almost tasteless nonionic detergents and emulsifiers. The process developed at Foster D. Snell, Inc. (New York) gives fair yields, and promises to improve with further development. Eye-catching feature: the raw materials are sugar and tallow, each with a price of around 7¢/lb., the lowest cost combination for any synthetic detergent known at the present time. In addition, the new detergents are edible and unaffected by hardness in water.

A whole collection of similar compounds might conceivably be synthesized by varying the lipophilic (fatty)-hydrophilic (sucrose) balance.

Another new sugar use, originally researched by National Sugar Refining Co. and now in the pilot plant at Mathieson Chemical, is an agricultural sticking agent for increasing the effectiveness of insecticides and herbicides by causing them to stick to the leaves of plants, barn walls, etc. It's covered by a patent application.

Big attraction of sugar for chemical makers is its low cost and unequalled stability as a commodity. Discounting the scare-buying during World War II, per capita consumption in the U.S. has varied only by about 8% from the average since 1922. Nor have reducing diets affected its sale appreciably. These features, coupled with abundant supply, (SRF says current production could be doubled or trebled) paint an undeniably attractive raw material picture.

Some other SRF-sponsored projects could lead to uses for sugar in plastics, fibers, rubbers, solvents, and insecticides. For example, 2-methylpiperazine (at 20 to 30¢/lb.) can be prepared from sugar by reductive ammonolysis, could find its way into higher polymers. Project 86, at Pennsylvania State University, covers this work, which is headed by W. C. Fernelius and P. S. Skell. So far, by a simple, one-step process, Penn State chemists go from such carbohydrates as sugar,

starch, dextrose, and bagasse to a family of diamines potentially useful in polymers, rocket fuels, and dyes. The possibilities of this process have sparked a marked step-up of project 86 this year. Remaining goals: higher yields; and a better catalyst.

Another area of major interest, sulfur derivatives of sugar, is coming in for study by Ray Lemieux, new head of the chemistry department at Ottawa University, formerly of Canada National Research Laboratories. Here again, the reagents—sugar and hydrogen sulfide—are low in cost. One product made this way is under test as an



SRF'S HASS: Not whether, but when.

ingredient of permanent wave lotions. Another, at Goodyear Rubber Co. is being looked at as a chain stopper in rubber polymerization.

According to Henry Hass, SRF president, the outlook is bright. The broad question, says Hass, isn't whether there will be an important organic chemical industry based upon sucrose and its by-products—only when it will take form. He points to a fast start in this direction by such firms as Atlas Powder Co. (with its proposed \$10-million plant to make glycerol from sugar), South Porto Rico Sugar Co. (furfural from bagasse), Valite Corp. (synthetic resins from bagasse).

Meanwhile, the targets of some of the longer-range SRF studies may be decades away. For example, project 96, with H. A. Pinkalla of American Bio Synthetics Corp. (Milwaukee), is directed toward finding a microorganism which will act on molasses and

ammonia to produce a protein high in lysine and tryptophan. These amino acids plus methionine (now synthesized by Dow and Du Pont from petrochemical sources) are essential to human nutrition. Since vegetable proteins are deficient in this trio of protein precursors, the availability from sources other than meat could mean an adequate diet from vegetable sources alone, help eliminate hunger from many of famine-stricken areas of the world.

Another possible sugar chemical also looks like a long-term proposition. SRF-sponsored researchers have succeeded in cyanoethylating sugar, find the product is a colorless, viscous oil insoluble in water. Possibilities exist as an insecticide, but applications are tied to the price of acrylonitrile (the cyanoethylating agent) which at around 30¢/lb. is a high-priced reagent by SRF standards.

And still over the commercial horizon are high-polymer polyvinyl sucrose derivatives, now being researched at the University of Vancouver. Acetylene (10¢/lb.) and sugar are the low-cost precursors.

While finding chemical outlets for sucrose isn't SRF's only interest, it's a major one. Some other prominent areas of SRF research are in analytical chemistry (the sugar industry needs improvement of its routine analytical methods), feeding sugar to plants, action of sugar in animals (e.g., a large new outlet looms in pig starter rations) and, finally, in helping established food industries with their sugar-utilization problems.

Nor has the chemical industry been looking idly on at the efforts of the sugar growers to enhance the commercial scope of their products. An effort in this direction now getting close scrutiny is the ammoniation of molasses, a process covered by Commercial Solvents Corp.'s U.S. patent 2,603,567. Molasses, primarily a carbohydrate feed, is boosted in protein value through ammoniation. Ruminants can utilize this food, yielding more beef and mutton than they would ordinarily yield.

Although CSC has put out some fortified molasses for limited consumption, the project is still in the development stage. More field testing is needed before marketing can begin in earnest.

And that about sums up the status of most promising sugar utilization developments. They're edging up on commercial feasibility; but when they will arrive is, at this point, anyone's guess.

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RESEARCH

Eyeing a Machine Cure

Plagued by a combination of woes, the ailing Patent Office is hoping that a recently formed six-man Commerce Dept. committee can solve some of its painful problems. This week, the committee is studying a proposal that could change fundamental patent procedure, simplify literature searches and surveys.

Their deliberations hinge on whether the office should adopt mechanical searching techniques as an integral part of patent-issuing methods.

The chemical industry would be the first to benefit from such a change, since patents on chemical compositions would be the first to be set up for machine handling.

Reduced to essentials, a mechanical



WIDE WORLD

COMMISSIONER WATSON: Eyeing some fundamental changes.

system would enable the patent office to store a mass of coded facts so that they could readily be relocated in future searches for prior claims on an invention. A tangible case in point is a method developed in an earlier study of this field.

Using 1,850 punched cards, patent office workers encoded the information from 441 patents in quickly accessible form. By feeding searching instructions into electronic devices, the correct patent reference was obtained in less than five minutes—considerably less time than the job would have taken if done by manual techniques.

Essentially a pioneering effort, this achievement required a specially modified apparatus and an unusual card punching code. For future use, a faster, simplified setup would be sought. Newer machines, utilizing

magnetic tapes and drums, for example, are now being examined by the committee.

To guarantee that the system they recommend will be the best, committee members are talking with chemical and petroleum companies that possess mechanical literature searching systems. (There reportedly is little question in committee members' minds that the most advanced literature techniques are operating in the chemical-petroleum field.)

Even so, none of these industrial systems measures up to the one the patent office envisions. And setting one up would be too costly for nearly all firms. But, sensing an opportunity to benefit from this government project, many companies have already expressed the desire to purchase duplicate cards if the Patent Office goes ahead and prepares its own file. Such cards, if they materialize, probably would be made available on a subscription basis.

Thorough Coverage: Current concern for ways of speeding up the patenting procedure is hardly surprising in the light of the mounting backlog of applications waiting to be processed. But it's more than a problem of quantity; it's also a case of covering an enormous collection of data that may have some bearing on the patent eligibility of an invention.

In making such a search, a patent examiner checks the patents in the various categories in which a prior disclosure might be made. If, for instance, it is a lubricant under consideration, he must check a number of other classes (e.g., detergents, etc.) in addition to the lubricant category. And not only would he check patents, but he would also search such outside sources as *Chemical Abstracts*.

Such a procedure is time-consuming at best. But since some of the patent categories have grown to prodigious proportions, an examiner spends most of his time delving into patents that have little or no relation to the application in hand.

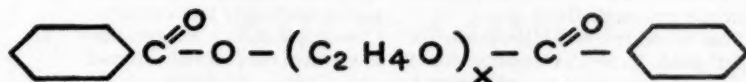
For these reasons, the searching done by the Patent Office is doubtless the most thorough and detailed of that done anywhere in the world. Certainly, no foreign patent system calls for this extensive a search; very few industrial organizations could afford it.

Problems: Mainly as a result of these painstaking demands, the design of a mechanical searching system is fraught with problems. One of the difficulties stems from the multitude of viewpoints from which a search could be made.

Sulfathiazole, for example, could be

announcing 8 new benzoate esters

WITH WIDE RANGE OF PROPERTIES



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TENNESSEE announces a new series of glycol dibenzoate esters, each with special properties that may improve your product or processing. They are *light-colored, stable, mild-smelling*, and have *high-boiling* points. Their property range varies widely in freeze points, viscosity, and solubility . . . especially *solubility of water* in the higher glycol members. *Suggested Uses*: plasticizers for polyvinyl, cellulosic and phenol-formaldehyde resins. Other potential uses: lubricants, textiles, leather, adhesives and flotation.

Write on your letterhead to Dept. C-9 for experimental samples and technical data.

TYPICAL PROPERTIES OF NEW *Benzoflex* ESTERS

Benzoflex Number	9-98*	2-45*	E-60	T-150	P-200	P-300	P-400	P-600
Chemical Name	Dipropylene Glycol Dibenzoate	Diethylene Glycol Dibenzoate	Ethylene Glycol Dibenzoate	Triethylene Glycol Dibenzoate	Polyethylene Glycol 200 Dibenzoate	Polyethylene Glycol 300 Dibenzoate	Polyethylene Glycol 400 Dibenzoate	Polyethylene Glycol 600 Dibenzoate
Color APHA	100	50	50	100	100	150	150	300
Boiling Pt. @ 1 mm. Hg., °C.	195-200	200-205	....	223-37	217-290	243-327	258 d.	200 d.
Specific Gravity @ 25°C.	1.129	1.178	Solid	1.168†	1.158	1.150	1.145	1.141
Freeze Point, °C.	<-35	28 16	70-2	47	<-35	<-35	<-35	3.8
Pour Point, °C.	-20	-25†	Solid	Solid	-30	-30	-35	Solid
Flash Point, °C.	212	232	186	237	248	258	254	264
Refractive Index @ 25°C.	1.5282	1.5424	Solid	Solid	1.5252	1.5137	1.5077	1.4984
Viscosity (cps. @ 20°C.)	215	110	Solid	Solid	101	130	167	330
Solubility, % @ 25°								
In water	insol.	insol.	insol.	0.05	0.80	0.14	0.70	0.78
Water in	0.45	1.0	....	....	2.3	8.3	16.5	32.0
Aliphatic Hydrocarbons	sol.	sl. sol.	insol.	sl. sol.	insol.	insol.	insol.	insol.
Aromatic Hydrocarbons	sol.	sol.	sol.	sol.	sol.	sol.	sol.	sol.

*—Available in commercial quantities. All others now available in development quantities only.

†—Supercooled liquid.

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RESEARCH

approached from at least three directions:

(1) It is heterocyclic, specifically, a thiazole; (2) it is an amide, and a sulfonic acid amide; (3) it is an amine, an aromatic amine and a primary aromatic amine, at that.

Few searches would be made for sulfathiazole itself; the majority would have to be on a more generic basis. A searching system would have to allow for this, permit the execution of fine-tooth-combing with the same ease as broad surveying. Consequently, a medicinal compound containing sulfathiazole should be indexed according to all (and any combination) of the key traits of sulfathiazole. Moreover, it must take into account a description of each other ingredient, plus a description of the disease against which the compound is active.

Wartime Interlude: This isn't the first time that the Patent Office has studied mechanical searching. A task group launched in 1946 achieved some results in this field by 1950. Its work was discontinued, however, at the outbreak of hostilities in Korea.

Interest was rekindled this year by the Patent Office staff, headed by Patents Commissioner Robert Watson, when the Senate Appropriations Committee suggested that the study be renewed. Top Commerce Dept. officials saw to the organization of the six-man committee. Once the latter has completed its assignment, a final disposition of the mechanical searching program will be in the hands of top-level Commerce officers.

New Role For Ceramics

Heartened by a strengthening of its patent hand, Armour Research Foundation (Chicago) this week is seeking licensees for its new process of coating surfaces with ceramics. Key to the method is the formation of true solutions in water and "other chemicals" of such refractory metal oxides as zirconia, chromia, titania, ceria, magnesia, etc.

The solution is sprayed on the object to be coated (which is first heated in the 200 F to 700 F range), the solvent flashes off leaving a ceramic film molecularly bonded to the surface.

According to the inventors of the method, Samuel Bradstreet, Jr., and J. Scott Griffith, it is not comparable to conventional coating techniques, augments rather than competes with these. For example, surfaces previously unsuitable as a base for porcelain enamel can be made receptive to this finish by solution ceramics. This feature has already sparked interest among appliance manufacturers.

The ceramic solutions are claimed to contain neither adhesive nor bonding agent, have a number of desirable features:

- Easy to apply; conventional spraying equipment is adequate; protected heating is unnecessary.
- Application temperatures are lower than for porcelain enamel.
- Coating thickness can be accurately controlled; film thicknesses can be made in the range of 0.01 in. to a few millionths of an inch.

Besides these, the solution ceramic coatings are said to be highly heat-resistant; the more refractory ones reportedly can be used to protect metal against molten metal or slag. And the films are resistant to chemical attack, even at high temperatures. Unlike ordinary ceramic materials, solution ceramics are claimed to be soft enough to permit sheet metals to be stamped after coating.

Inventors Bradstreet and Griffith point out that in addition to other refractories, certain phosphates, silicates, fluosilicates, oxyhalides, and even metals can be deposited using their method, and that two or more materials can be co-deposited or applied in separate layers.

Envisioned uses for solution ceramics include such foundry applications as coatings for molds, chills, cores, stoppers, inserts, runners, crucibles or holding ladles, die-casting reservoirs, and metal pumps. High-temperature coatings for resistor wire or tape, thermocouples, condensers, and wire-wound conductors are other possibilities of interest to the electrical industry.

In the parent ceramic field, the new process holds potential as a colorant for pottery and tile. And it's a means of applying conductive, photo-emissive, catalytic, or decorative coatings to glass, ceramics and cermets (composites of ceramics and metals).

Costwise, the new technique is said by ARF to be in line with other protective coatings. Moreover, it allegedly embodies certain unique money-saving features that the Foundation isn't ready to disclose. At least two drawbacks will hamper the process: minimum temperature required (200 F) is too high for paper products; temperature of the object to be coated is somewhat critical, must be held within reasonably close limits.

Industrial firms granted licenses will reap a twofold benefit: permission to use Foundation patents (now applied for), and (since royalties from licensees will be used toward further research on solution ceramics) exclusive use of subsequent findings.

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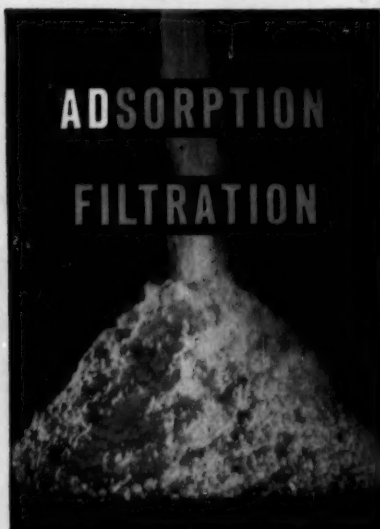


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RESEARCH



MID-AIR REFUELING: With each new improvement, another materials problem.

Future in the Air

Progress means problems; and no place is this more true than in aviation, where faster, higher flying aircraft have triggered an intensive search for tougher heat- and corrosion-resistant materials. At next week's American Chemical Society national meeting, chemists P. J. Stedry and J. F. Abere of Minnesota Mining and Manufacturing will report on new fluocarbon rubbers that may be the answer to the Air Force's needs for a hose and gasket material that can stand up to hot lube oils.

Developed in the laboratory more than a year ago, the new product-tagged Poly-FBA—is a polymer of 1,1-dihydroperfluorobutyl acrylate. According to the Air Force, which had a hand in the research work on the fluoro ester, oil resistance is excellent and heat resistance is reputedly better than anything else yet found.

That's good news to the people who know what hot lube oils do to ordinary hose lines and gaskets. Synthetic lubricants (e.g., diester sebacates) are among the worst offenders in this respect. Not only are they hard to handle, but also each new representative breeds further difficulties by permitting hotter engine operation, which, in turn, means accelerated corrosion.

Industry also should benefit. Highly resistant to acids, alkalis, peroxides, solvents and nearly all other reagents, the fluocarbon rubbers might work out fine in many troublesome diaphragm, gasket and seal applications.

But their outstanding physical attributes are dimmed by stiff cost. Sample quantities of the new material

are set at \$25/lb. This, of course, is a tentative price (evaluation of the product is still under way), but even on a commercial scale, cost would probably still be high.

Contender: Cost of the only known competing product, M. W. Kellogg's (New York) new Kel-F elastomer, is completely a matter of conjecture. The Kellogg fluorocarbon rubber is currently available only in experimental quantities; but following completion of a pilot plant (scheduled for spring of 1955) and distribution of samples, this situation should change markedly.

This much, however, is known about the product: it contains 50% fluorine (by weight), can, according to Kellogg, be readily compounded, mixed, molded and extruded with standard rubber processing equipment. Moreover, avers the company, it is compatible with other rubbers, may be vulcanized by organic peroxides, polyisocyanates, polyamines and isocyanate-amine combinations.

Like its 3M-developed near relative, the Kel-F elastomer was developed in cooperation with the government (Office of the Quartermaster General), is said to be highly resistant to acids (even white fuming nitric), alkalis, peroxides, alcohols, aliphatic and chlorinated solvents, lubricants and some hydraulic fluids.

In addition, thermal stability tests are said to show that the vulcanized elastomer may be exposed to temperatures up to 400 F for as long as four weeks without "appreciable change in physical characteristics." Also claimed: good electrical characteristics; non-

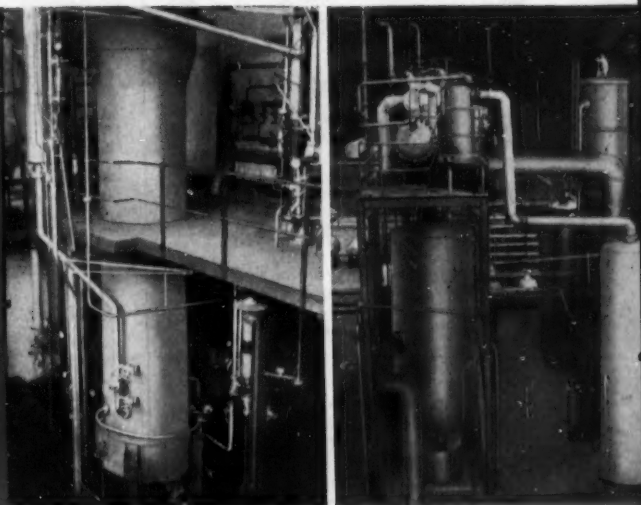
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RESEARCH

flammability; toughness; resistance to ozone, sunlight, fungi and abrasion.

Envisioned applications include chemical- and heat-resistant hose, tubing, diaphragms, gaskets, "O" rings, seals, tank linings, acid-resistant boots, gloves and protective paints and sealings.

Subject of several upcoming papers at the New York ACS meeting, the Kel-F rubber effectively gets around the problem of poor flexibility that is characteristic of conventional Kel-F plastic. How it does the trick and just what, indeed, the Kel-F elastomer is (from a structural standpoint) are questions that doubtless will be asked.

Right now 3M and Kellogg appear to have the only representation in the new fluorocarbon rubber field. Du Pont, a logical interested party on the strength of its Teflon fluorinated resin, is watching from the sidelines.

Drug Headliners

Among the highlights of the recent 101st meeting of the American Pharmaceutical Assn. (Boston) were the following:

- A new series of alkyl nitrourethanes for anticancer research. Synthesized by researchers Donald Krook and C. E. Miller of North Dakota Agricultural College, the new compounds are 2-nitro-2-methylpropylurethane; 1-chloro-3-nitro-2-butylurethane; and 2-nitrobutylurethane.

- Ethylene bis-dithiocarbamate ester fungicides. Products of fundamental studies by Alfred Collins and Gail Wiese of State University of Iowa (College of Pharmacy), the esters were prepared by condensation of disodium ethylene bis-dithiocarbamate with an alkyl halide. Screening studies showed the diallyl ester to be superior to undecylenic acid against five fungi. The bis-2-hydroxyethyl, bis-3-hydroxypropyl, and the di-n-propyl esters reportedly approximated the action of undecylenic acid against several test organisms.

- Metal chelates with antitubercular activity. Researchers William Foye and J. George Jeffrey of the University of Wisconsin school of pharmacy tested metal chelates of *o,o'*-dihydroxyazobiphenyls and phenanthrenes, obtained some activity with all compounds tested. Iron, chromium and copper chelates were employed.

X-Ray Analysis: Designed specifically for speedy, non-destructive chemical analysis of metals, powders and liquids, a curved crystal, multi-channel X-ray quantometer is newly available from Applied Research Laboratories (Glendale, Calif.). Increased

sensitivity, precision, and analytical speed of the device over previous machines of this type are said to hinge on the use of a curved rather than a flat crystal. The curved crystal permits simultaneous analysis of as many as eight elements.

Identified as its model 10,500 curved crystal quantometer, Applied Research's new instrument also features a console to record the percentage of elements found in the sample.

Lab Expansion: Facilities for latex research and development are slated for expansion at Dow Chemical Co. (Midland, Mich.). A new lab will be ready Nov. 1. Two other buildings are expected to be completed early in '55.

Bug for Cleanliness: To measure precisely the cleanliness of eating, appliance, and preparation surfaces commonly used in the kitchen, the National Sanitation Foundation developed a new tracer technique that should be of value to soapers and detergent makers. In tests conducted at the University of Michigan's school of public health (under NSF sponsorship), different surfaces under evaluation were coated with a thin layer of bacteria tagged with radioactive phosphorus. Using the special Geiger counter, the number of bacteria was determined before and after washing the surface, percentage removal of bacteria observed.

According to Walter Snyder, director of NSF, stainless steel, glass and china showed excellent cleanliness (97 to 99% bacteria removal) after washing. Lower cleanabilities were exhibited by aluminum and several types of plastic surfaces (56 to 84% removal). After long wear, stainless steel retained its good cleanability characteristics while all other materials tested were affected adversely.

Lab Adds: Under way or pending, this week's additions to the roster of chemical laboratories checked off as follows:

- At Greenville, S.C., a new development laboratory is planned by Union Bay State Chemical Co., Inc. (Cambridge, Mass.). Stress will be on textile products. Textile chemist, Roy Boggs, will head the lab.

- A tubular molding pilot plant is now being erected at Berlin (N.J.) by Owens-Illinois Glass Co. (Toledo, O.).

- Excavation is now under way for the \$1,275,000 industrial film research laboratory being erected at Du Pont's experimental station near Wilmington, Del.

- And at Newport (Del.) Du Pont



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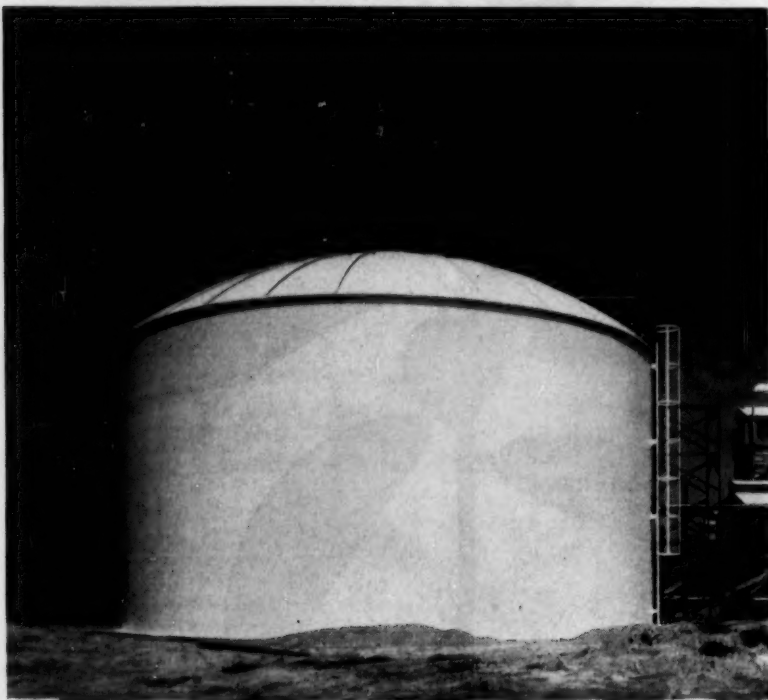
R-53

Plants at Neville Island, Pa. and Anaheim, Cal.

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Los Angeles 17	1477 General Petroleum Bldg.
New York 6	3361—165 Broadway Bldg.
Philadelphia 3	1670—1700 Walnut St. Bldg.
Pittsburgh 19	3271 Alcoa Bldg.
Salt Lake City 4	573 West 17th South St.
San Francisco 4	1571—200 Bush St.
Seattle 1	1373 Henry Bldg.
Tulsa 3	1672 Hunt Bldg.

Plants in: BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

RESEARCH

is starting rehabilitation of its textile research laboratory. Slated to cost \$300,000, the project encompasses 15,000 square feet of floor space in existing buildings.

API Samples: Available from the American Petroleum Institute are two new standard hydrocarbon samples. They are 2,4-dimethyl-3-ethyl pentane and cyclohexylcyclohexane.

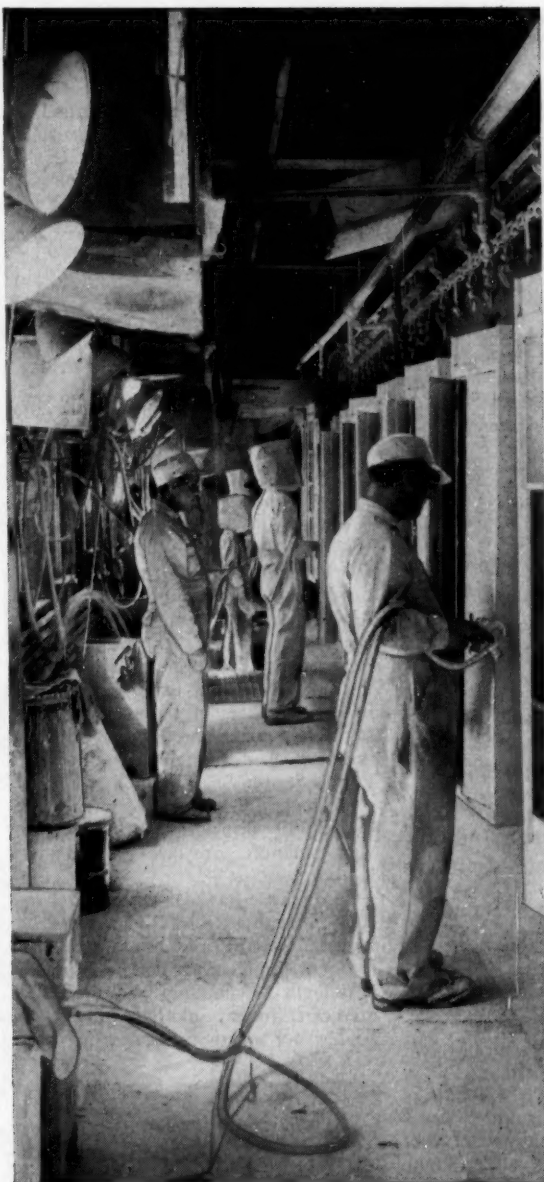
New Dissolver: For manufacturers in the chemical, plastics and allied industries, the Cowles Co. (Cayuga, N.Y.) now offers a new laboratory version of its Ultrafast dissolver. The new machine is claimed to duplicate the dissolving characteristics of the larger model, permitting experimental or production batches up to five gallons. Called Cowles Model 1-VT, the miniature is 30 inches high, utilizes a 1-hp. motor. Special solution problems, not conveniently scaled to laboratory batch size, will still be handled by Cowles engineers.

Tube Furnaces: Burrell Corp. (Pittsburgh, Pa.) has published a new bulletin (No. 310) describing its high-temperature electric tube furnaces. The furnaces, available in two models and seven sizes, are used for determination by combustion of carbon and sulfur in ferrous and nonferrous metals. Burrell "H" models are claimed to be a new concept in furnace design, feature faster heating, cooler operation, and greater flexibility than previous designs. The model H-1-9 for one tube lists at \$585, the two tube model at \$600, and the four tube furnace at \$850.

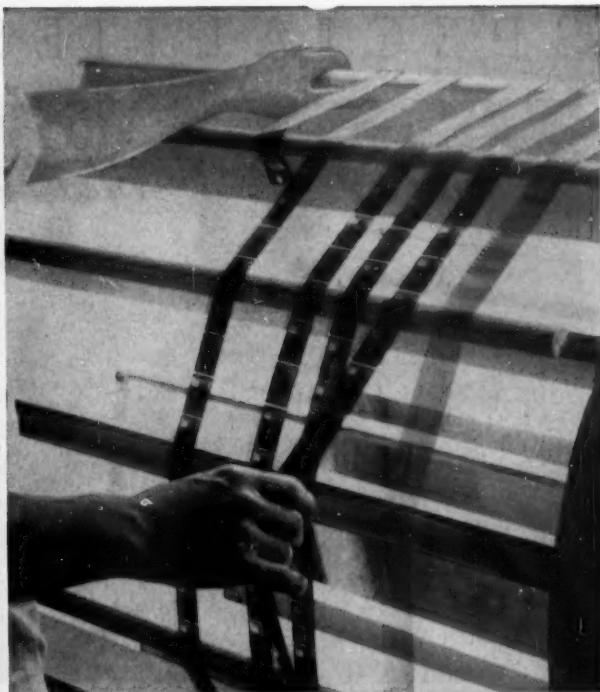
Chemical Entry: High purity is claimed for Verona Chemical Co.'s (Newark, N.J.) newest product *o*-isopropylphenylacetic acid. Like the *p*-form, also made by Verona, the new acid is suggested as an intermediate in the preparation of pharmaceutical chemicals.



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CHEMICAL

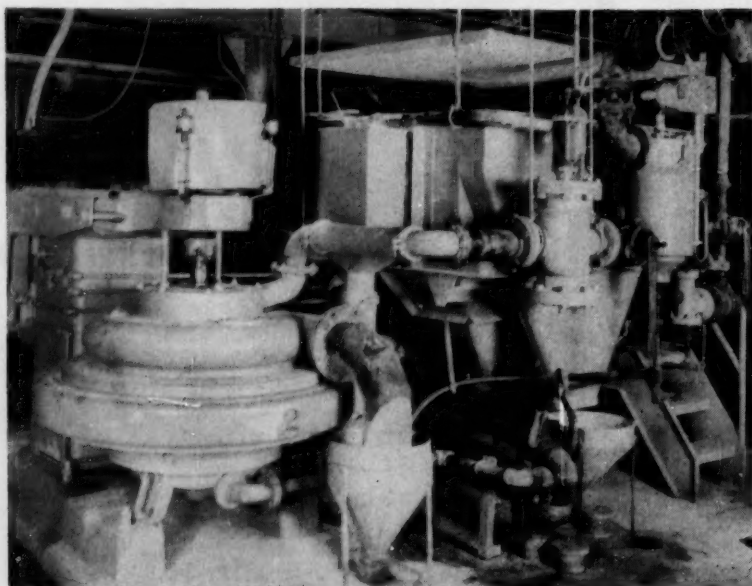
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SPECIALTIES



CENTRIFUGE TO IRONER: Getting starch from corn is a job for the centrifuge.

Collaring Starch Sales

Convenience outbalances price, at least in the \$40-million starch business, where liquid starches show steady sales gains.

Cold-water soluble dry form, most recent innovation, is still a one-firm idea, but competition looms.

Plastic starches have proved to be graveyards for some specialties makers, though big producers report rising sales.

There have been few things as briefly mourned as the passing of the stiff, three-inch shirt collar. Surprisingly, even the makers of household starches, which put the unbending severity into these devilish devices, have scarcely regretted its disappearance. For by last week it was plain—home starches now have a \$35 to \$40-million annual retail sales volume, and it hasn't showed signs of slumping.

There have been some big changes in preferences among housewives, however. But these changes have been largely postwar, rather than over the past quarter of a century. Basically, this has become increasingly evident: the U.S. housewife will pay a sizable premium for convenience. That yen for convenience has meant a boom for the makers of liquid, precooked starches.

It has been a trend that has favored the specialties maker. For the conventional liquid starch is an ideal product for the maker of household items like

bleaches, ammonia. Such a starch is easy to make—it simply requires careful cooking, plus the addition of wax slipping agents, preservatives, and sometimes bluing and perfumes, etc. (Hood Chemical Co., Philadelphia, uses a silicone as its slip agent.) Basic corn starch suppliers offer help in the liquid formulation.

Now it's estimated that in Eastern areas, close to 70% or more of packaged laundry starches sold are of the precooked liquid variety. Even in the Midwest, and areas where the dry types are still popular, the liquids have made impressive inroads.

Powders and Plastics: The obvious distaste of housewives to home-cooked starch has led one big factor in the field, Corn Products Refining Co., to introduce a powder type that dissolves readily in cold water. (Most of the currently available dry types don't exactly demand cooking, but boiling water must be added to them.) It has been on the market for about a year.

Niagara Starch, as it is called, is about a third as expensive to use as liquid precooked products. It is still about twice the cost, though, of conventional dry products. Corn Products won't say just how the specialty is moving, but it's plain that should it start booming, competition would be right along. The pregelled dry starches like those of Hubinger (Shenandoah, Iowa) could be adapted for home use—they're currently going into drilling muds.

Big news in the starch business only a few years ago was the "plastic starch." Generally water emulsion of vinyl acetate and acrylic resins, it received widespread acclaim in some of the consumer magazines. At first, its ability to increase wear resistance of fabrics, coupled with the fact that it need be used only every eighth to fifteenth washing seemed to insure its success.

Saleswise, however, plastic starch has not yet become everything hoped for, and makers of the corn starches say it has made no real dent in their business. And though big firms like Perma Starch Co. (Illioopolis, Ill.) report generally rising sales, many of the 30-40 firms that tried plastic starch manufacture have had to give it up.

The plastic has met with varied reception by housewives because of its high initial cost, and because the infrequent applications necessary make it difficult to maintain a desired degree of stiffness in clothes. (The plastic has not met with success in com-



READING it for the housewife is a \$40-million job for specialties makers.

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New Alkali-Soluble Vinyl Polymer

"Elvadex" vinyl polymer is a unique vinyl acetate copolymer soluble in alkaline solutions.

Insoluble in neutral or acidic solutions, it is readily soluble in dilute ammonia, soda ash, or caustic solutions. Films cast from any of these solutions are clear and glossy; films cast from ammonia solutions are highly water-resistant upon drying. "Elvadex" is also soluble in low-cost organic solvents such as methanol, methyl ethyl ketone, and ethyl acetate.

Solutions of "Elvadex" are compatible to some extent with "Elvanol" polyvinyl alcohol and "Elvacet" polyvinyl acetate emulsion.

USES FOR "ELVADEX"

Applied from ammonia solution on the slasher, "Elvadex" is now extensively used as an off-loom finish for dope-dyed acetate yarn. It protects the yarn during weaving and provides a durable, non-water-spotting finish on the fabric.

The tensile strength, flexibility, and adhesive properties of "Elvadex" make it an excellent warp size for synthetic fibers. Size is easily removed by a warm, mildly alkaline scour.

Applied to paper, "Elvadex" solutions give clear, glossy, greaseproof coatings in which pigments and dyes can be readily incorporated.

OTHER APPLICATIONS. "Elvadex", in alkaline solutions, is suggested for evaluation as a thickener, pigment dispersant, or flow improver for latex paints. Dissolved in organic solvents, it is also suggested as a base for lacquers and aniline-type inks, and as an ingredient of emulsion-type floor wax.

For more information on "Elvadex" write to: E. I. du Pont de Nemours & Co. (Inc.), N-11505, Wilmington, Delaware.

*Du Pont trade-mark. "Elvadex" was formerly known as ELICHEM 1273 alkali soluble vinyl polymer.



Better Things for Better Living
... through Chemistry

SPECIALTIES

mercial laundries, either.) Poor formulations, giving unsatisfactory results, are blamed for the failure of some firms to stay in the plastic starch business. In many cases, the plastics were conceived as companion products to a company's liquid corn starch, and as such received limited sales push.

CMC Special: Still marketed in a fairly limited area is a liquid "starch" based on carboxymethyl cellulose. Tidy House Products (Shenandoah, Ia.) has had its Glosstex on the market in the Midwest for about five years.

It is somewhat higher-priced than ordinary home starches (at 29¢/qt. compared with 19-22¢/qt.) since it is made from food grade CMC (at 51¢/lb. against cornstarch at 5¢/lb.). Glosstex is claimed to have several advantages over conventional products: it helps prevent resoiling, won't mask color of cloth, can be used with fabrics (rayon, silk, wool), which don't give a good hand with cornstarch, and gives a more flexible finish than starch.

Competitors: Nearly all the big raw

starch producers not only sell to the specialties makers for liquid starch manufacture, but also make similar consumer products themselves. Examples: Corn Products Refining Co. (Argo, Niagara, Linit starches); Hubinger Co. (Elastic); A. E. Staley Co. (Sta-Flo, Cameo). One exception is National Starch—it sells raw materials to both sides of the starch street—corn starch and the vinyl resins for plastic starches.

It's the big starch companies, too, that supply commercial laundries. There CMC is competing with starch, but its cost has scared away some laundries. One gimmick: charge extra for shirts finished with CMC.

Zippy Products, Inc. (Lansdowne, Pa.) is the largest maker of liquid starches. Its operations, through franchised manufacturers, are coast to coast. Cagney about sales now, it does say they are over the estimated 45 million quarts retailed in '51.

That's a pretty high stack of bottles of starch, and it means a pretty high stack of dollars. Chances are it will mount even higher.



Ragweed Scourge

TEN TRUCKS of this type sprayed 500,000 gal. of 2,4-D along 1,700 miles during Operation Ragweed in New York's upstate Sullivan County in a recent two-month campaign. Aim: to make the area safe for hay-fever sufferers who visit the county's summer resorts. An official party of checkers has just reported the campaign "a complete success."

The specially equipped International trucks have four nozzles on

the upright boom at the forward right corner of the truck, under the driver's control (the trucks have right-hand drives). There are lights for nightwork—necessary in rush seasons.

The program was financed by the Sullivan County Hotelmen's Assn. and McMahon Brothers, a Binghamton, N.Y., spraying company. Together the sponsors spent \$24,999 and billed the county for \$1.

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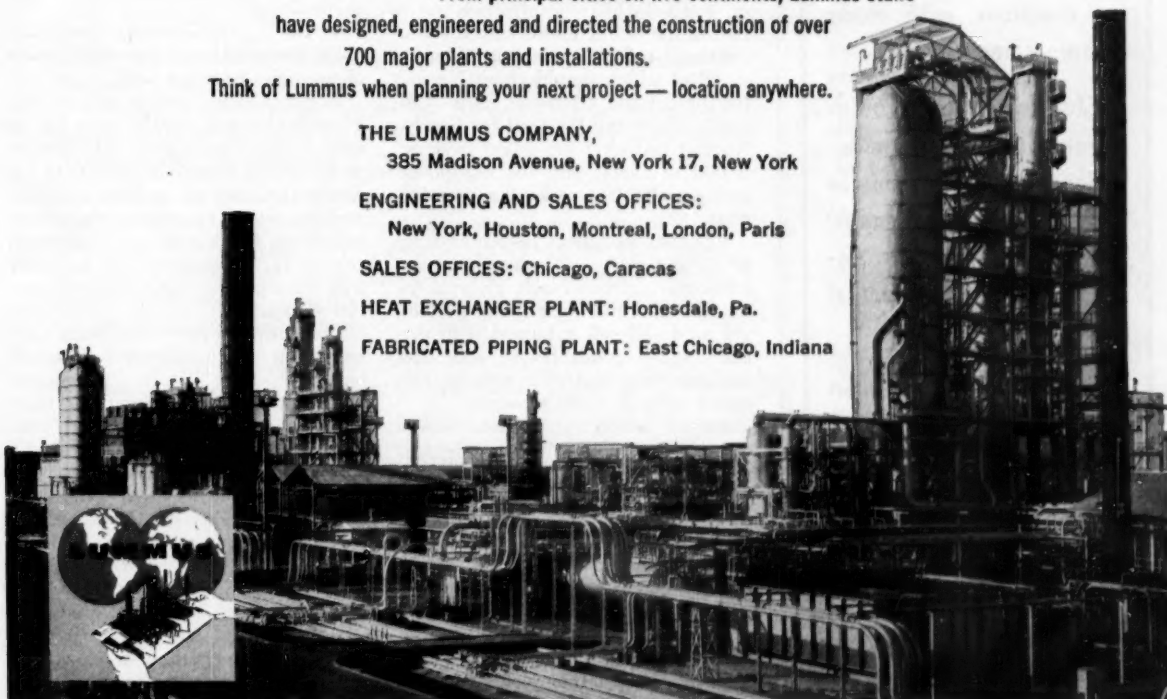
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HEAT EXCHANGER PLANT: Honesdale, Pa.

FABRICATED PIPING PLANT: East Chicago, Indiana



ILLUSTRATED: 40,000 B/D petroleum refinery at Dunkirk, France, designed, engineered and constructed by Lummus for the Société Générale des Huiles de Pétrole.

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Glucuronolactone and the salts of Glucuronic Acid are a new series of pharmaceutical intermediates. Containing three basically different functional groups—aldehyde (or hemiacetal), hydroxyl and carboxyl—they can be used for reactions with many organic compounds.

Glucuronic Acid conjugation is an important detoxicating mechanism in both animals and humans. The compound is an integral part of physiological tissues and fluids.

Literature available upon request.

"Fine Chemicals from Corn"

Chemical  Division

**CORN PRODUCTS
REFINING COMPANY**

SPECIALTIES



SCRUB CHECK: Part of the washload, swatches are later 'Geiger-counted.'

Isotopes for Washing Check

"Hot dirt" is gaining new prominence. Used to evaluate the washing effectiveness of Bendix washing machines, it has provided the basis for an about-to-break promotional campaign by Bendix.

The campaign, full of lush ad phrases like "Atomic Washday" and "Atomic Evidence and Scientific Tests," should put the radioactive-soil-and-Geiger counter method of checking detergent or wash-machine effectiveness on a par, in the public mind, with the conventional reflectometer test systems.

All of which should cheer Nuclear Instrument and Chemical Corp. (Chicago), which ran the tests for Bendix. Nuclear provided the soiled swatches (3,000 of them) and the equipment and personnel to make the examinations.

For tests like this, Nuclear uses up to six different soil types, but most commonly, carbon black, glyceryl tristearate (fat) and algae (plant protein) are used. All soil is tagged with carbon 14; its count before and after washing are compared to give an indication of washer effectiveness.

For the Bendix test, Nuclear worked out a swatch that could be checked with both the Geiger counter and a reflectometer. The swatches were washed in soap, with water at 160 F. These tests showed, incidentally, what many commercial launderers have known—that the hot water "sets" protein, makes it difficult to get out.

Just a Start: Nuclear envisions the tests on washing machines as only the beginning in a complete washing product evaluation scheme. Besides

home laundry equipment, the "hot dirt" could be used to test:

- Machine or detergent effectiveness on specific stains—like grass, blood, rust, ink.

- The ability of laundry additives like CMC (carboxymethyl cellulose) to prevent redeposition of dirt.

- The fastness of dyes in various fabrics, as well as the comparative ease of washing different types of synthetic fibers.

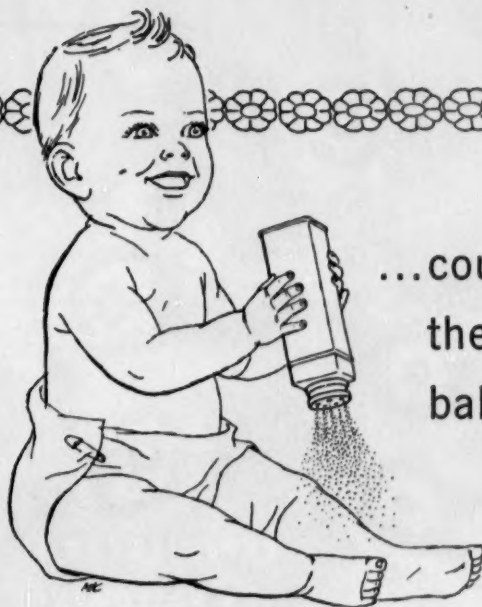
- The ease of cleaning plastic and china dinnerware—or the effectiveness of machines or soaps used.

For specialized testing such as this, a particular soil would have to be manufactured by Nuclear. The isotope preferred for these soils is carbon 14, chosen because of its long half-life, and low rate of emission of dangerous radiations. Cloth swatches made with carbon 14, for example, can be safely sent through the mails without special warnings.

Currently, Nuclear is offering several programs to interested firms—all built around the "hot dirt." A firm can buy the swatches for about 25¢ from Nuclear, wash with them, and mail them back for the count. Or, for about \$500, an organization can buy equipment for making its own tests. (Nuclear would still supply the swatches.)

Running tests on laundering problems now is Planet Chiu (*see cuts*). The wry remark of scrub expert Chiu, a graduate chemist currently seeking a degree in electrical engineering: "I've spent years getting an education, and I'm still learning electronics—and I've ended up being a laundryman."

IN STEARATES, A SPECK OF DIRT THIS BIG •



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the purity of a
baby powder

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Photograph shows recently completed naphthalene unit

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Liquid-tight samples that have the appearance of retail-size packages are dropped in an envelope and mailed to potential buyers.



Competition For Coupon

As if liquid detergents for dishes weren't novel enough to catch the consumer's eye, contract packagers have developed an ingenious way to wrap a sample of liquid sudser in a foil and plastic pouch. Mailable in an envelope, it's a single use unit.

Lever Brothers, for example, is still getting inquiries from a limited campaign it tried with its Liquid Lux in pouches. The company wanted to see if the one-shot packets could pull in more customers than direct couponing. Although results aren't final yet Lever seems pleased with the campaign.

Postal Doubts: Not everyone, though, has greeted the plastic pouches cheerfully. Shortly after the Lever mailing, New York City postal authorities raised doubts about the sturdiness of such packaging—feeling that the units might leak, make a gummy mess of the U.S. mails.

But, as Ivers-Lee (Newark, N.J.) proved, the packets are plenty tough, and can take a pressure of more than 70-80 psi.—the requirement set up by the post office. And with that o.k., the pouches have been tried for mail samples of hand creams, cough syrups, even sulfa suspensions. So far, the packages have been most widely used for samples, although some have been used for retail sales.

Dobeckmun Co. (Cleveland) worked with Ivers-Lee in making the special packages. A heat-sealable triple laminate was required.

On the inside of the packet is cast vinyl film, which was supplied by Bakelite in the packets pictured above. Sandwiched between the vinyl and acetate (used to give an easily printed surface) is aluminum foil, to provide extra strength.

The lamination process used by Dobeckmun is a trade secret, although the firm admits it's a very simple one. The trio—tradenamed Metalam—are glued together in a system of rollers with a clear and flowing adhesive. The printing is done by Dobeckmun—before the lamination.

Prices: Dobeckmun's price to Ivers-Lee on the Lux order was about 0.2¢/pouch. The company says that a metal or glass tube holding the same amount of detergent— $\frac{3}{4}$ oz.—would run about 2¢/tube.

Ivers-Lee's prices for the packets vary widely with both pouch size and order size. Roughly, the $\frac{1}{2}$ -gram size is about $\frac{1}{2}$ ¢ each; the 1-oz. size, about 3¢ each. In addition to the vinyl lining for the pouches, Dobeckmun offers polyethylene and Saran. The latest development at Dobeckmun is a film that's impermeable to essential (perfume and flavoring) oils. This new film should lift some of the restrictions that have limited the packaging of some specialties.

Triple by Hudnut: Three new hair care products are being introduced by Richard Hudnut. One is a new home permanent, Quick, fast-acting product sold in three strengths (at \$1.50). For wave setting, Hudnut has Setting Pretty, in a plastic-bottled kit with a special applicator. It is suggested for "between permanents" use. Hair Repair is a product designed to correct and condition hair that has been damaged by bleaching or other "over-processing." It is a preshampoo treatment.

Finishes: Logo, Inc. is introducing a pair of finishing effects for plastics. Stipple X-88 is a coating that produces

Fatty alcohols ease dispersion in latex paints

Here's a new one—

To promote spreading, solubilize colors, and stabilize latex paint emulsions, chem-men are checking the possibilities of fatty alcohols. Of the wide range of CACHALOT brand fatty alcohols, one will probably do the job for you if your problem can be handled by a long-chain, primary, non-polar, monohydric alcohol.

The reason CACHALOT brand is so often specified for research use is the high uniformity of these cetyl, oleyl, and stearyl alcohols. Modern vacuum-distillation techniques assure you of the same constancy when you use CACHALOT in your production runs.

For the booklet on "Possibilities", write M. Michel and Company, Inc., 90 Broad Street, New York 4, N. Y. More than a quarter century a basic supplier to chemical manufacturers, their trade name for fine fatty alcohols is

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It's Still Our Only Business
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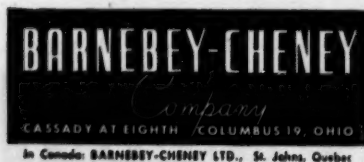
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SPECIALTIES

a textured base on plastics; after it has been applied and dried, it is coated with regular finishes for the plastic involved. Spatter R-69 can be applied either to the first surface of opaque plastics, or to the second surface of transparent ones. With transparents, the coloring coating is then applied after the Spatter; with opaques, the coloring coating is applied first, and followed by Spatter.

Cleans, Deodorizes: Huntington Laboratories, Inc. (Huntington, Ind.) is now selling a new toilet bowl cleaner called Sani-Tate. A milky-white emulsion, said to remove lime and rust in addition to deodorizing, it is sold in quart and half-gallon sizes.

Medical Enzyme: Armour Laboratories is now marketing a purified form of hyaluronidase, called Infiltrase, for medical applications. It will hydrolyze hyaluronic acid, and permit fluids administered subcutaneously or intramuscularly to be more rapidly dispersed in the body. It is supplied as a white powder, in vials.

Synthetic Waxes: Dura Commodities Corp. (New York) is now selling two new synthetic waxes, Duroxon D-150 and D-250. They are high-molecular-weight fatty acids and other oxygenated materials. For complete data and suggested formulations, Dura is offering a special booklet on the uses of the Duroxons.

Dairy Scourer: Said to combine wetting, penetrating and cleansing action, BryKo cleaner is a new scouring compound introduced by Pennsylvania Salt Mfg. Co. BryKo is a liquid designed for cleaning all types of dairy equipment.

Shock Treatment: The synthetic plasma expander, PVP-Macrose, has been okayed for commercial sale by the Food & Drug Administration. Used in treatment of shock, the blood extender has been largely purchased by the government for national emergency stockpiling use. Schenley Laboratories is among the suppliers.

Antisag: A new wetting agent and antisagging agent for paints is now marketed by Raybo Chemical Co. (Huntington, W. Va.). Tagged Raybo 94, the new compound is designed as a lower-priced running mate of Raybo 6, sells for about 9¢ less per pound.

Aluminum Coater: Alodine No. 1200 is a new metal protective coating for aluminum worked out by American

Chemical Paint Co. (Ambler, Pa.). Applied by dipping and rinsing, the coating (amorphous, mixed metallic oxides and chromates) is said to improve the resistance of aluminum to corrosion, and to make a surface to which paints can be bonded.

Quick Stripper: A new stripper for removing baked and air-dried coatings of all sorts has been devised by V. J. Dolan Co. (Chicago) and tabbed Instant Stripper. It is said to be non-flammable, fast acting, and relatively nontoxic. It can be adapted to production line processes, can be dipped, sprayed, or brushed on.

State Push: At a special one-day session last month, Michigan legislators authorized the state health department to enter into contracts with pharmaceutical companies for the manufacture and marketing of the new typhoid fever antibiotic, synnematin. (Interested are Parke-Davis, Upjohn, Pfizer.)

Scent Kit: A special kit of fragrances, tested in aerosol formulations, is offered by Standard Aromatics, Inc. (New York). Twenty-four scents are in the kit, along with data sheets explaining the use of each.

Salvage Aid: De-Solv 292 is a solvent preparation marketed by Ram Chemicals (Gardena, Calif.) for reclaiming electronic components embedded in polyester or epoxy resins. A 12-hour soaking in De-Solv is said to make most components readily removable.

No Foam: A way to eliminate foam from latex-base paints has been patented by Robert Silverstein, Aloysius Brady, and Arthur Brown in Menlo Park, Calif., and assigned to El Dorado Oil Works. The defoaming agent is an ester added in low percentages (0.05-1%). Alcohols suggested—tetramethylolcyclohexanol, pentaerythritol, dipentaerythritol, and tripentaerythritol—are esterified with an acid selected from those consisting of alkanolic and alkenolic mon-carboxylic fatty acids of 2-18 carbon atoms (U.S. Pat. 2,686,766).

Booklet: American Potash & Chemical Corp.'s agricultural chemicals (Eston Chemicals) division has just issued a booklet on the use of Estonmite-50W for control of spider mites in agricultural and ornamental crops.

Addition: Lederle Laboratories now markets Achromycin Ear Solution for local application in external ear infections.




ADHESIVE FOR DRINKING STRAWS

WINE CLARIFIER



BINDER IN OFFSET AND LITHO CHEMICALS



STABILIZER AND THICKENER FOR LATEX PAINTS



BINDER FOR WALLPAPER COLORS



BINDER FOR POLISHES



BINDER IN TEXTILE SIZINGS



HARDENER IN FLOOR WAXES



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laboratories welcome the opportunity to attack new and different specific problems. *Write for further information to the Borden Company, Chemical Division, Dept. CH-94, 350 Madison Ave., New York 17, N. Y.*

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And perhaps one of the many Maas chemicals can help improve your product or process. Write today for folder describing the Maas line.



Maas Hypo gives better quality at less cost to leather tanners.



Maas Hypo aids with coloring of brass and copper.



Maas Hypo is used to assist in bending and forming wood.



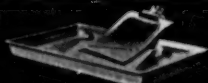
Maas Hypo is found to be a most economical means of separating starch from gluten in flour.



Maas Hypo gives better results in steel treating baths.



Maas Hypo aids soapers with the manufacture of cleaning compounds and soap.



And Maas is the leader in photographic chemicals—hypo—carbonate—sulfite—and other photo pure chemicals.

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Division Victor Chemical Works
4870 ARDINE STREET
SOUTH GATE, CALIFORNIA



SPECIALTIES

Lube Fluid: Shell Development Co. has recently patented a phosphate ester hydraulic fluid and lube composition (U. S. Pat. 2,686,760). The product is described as principally a liquid trialkyl phosphate (50-92% by weight) along with mineral oil bright stock (7.5%-60%) and an alkaline metal earth salt (0.25-5%). This salt is a condensation product of formaldehyde with alkyl phenols.

Fly Control: A baited insecticide for control of house flies has been marketed by d-Con, Inc. (Chicago). It is of the malathion-and-sugar type, with a special attractant added. It is for industrial use, not for households, and is sprinkled (it is a crystalline product) around the areas to be cleared of flies. Tabbed Fli-Con, it is being launched with a \$150,000 campaign by d-Con.

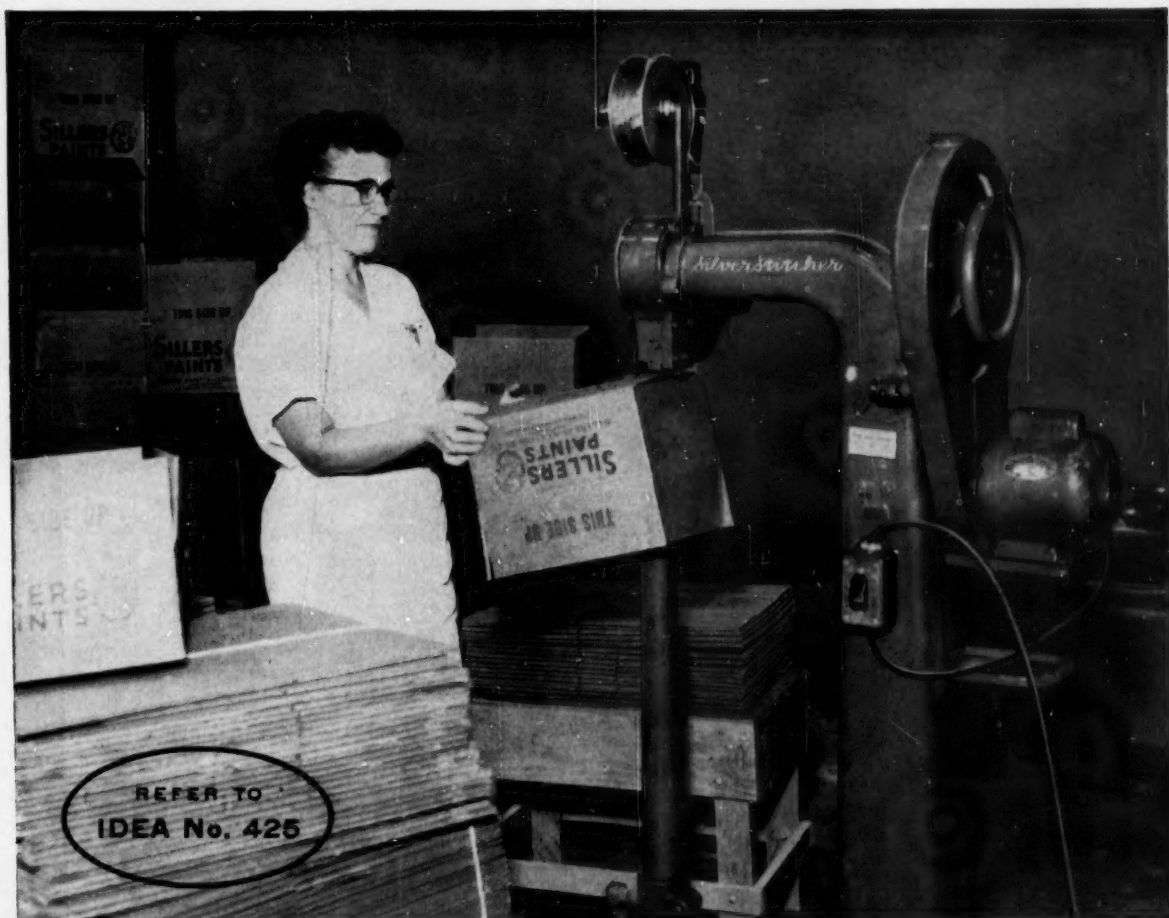
Spraying With Exhaust: The Bureau of Insect and Rodent Control of the Virginia State health department has invented a home-makeable fog generator to fit on the exhaust of power-mower motors for temporary relief from mosquitoes and other flying insects. The device operates as the lawn is being mowed. The bureau recommends use of 5% DDT in fuel oil solution in the apparatus, adding that the best results are obtained in early morning or late afternoon and at times when the air is still.

Silicone Specials: Dow Corning Corp. has put a new silicone rubber adhesive, A-4000, on the market. For bonding silicone rubber to itself or to various metals and other synthetic rubbers, it is claimed to set up without pressure in 24 hours.

• General Electric has a new water-repellent for masonry. Called Dri-Film 103, it is a transparent silicone resin particularly designed for work on common brick (though it can be used on all above-ground masonry).



THE UNITED WAY



AIM* for **EFFICIENT CARTON ASSEMBLY** with **Acme Steel Wire Stitching Ideas**



Acme Idea Man,
Fred C. Hartman,
helped modernize
carton assembly at
this Los Angeles plant.

ask your
***Acme Idea Man**
to help solve your
problems

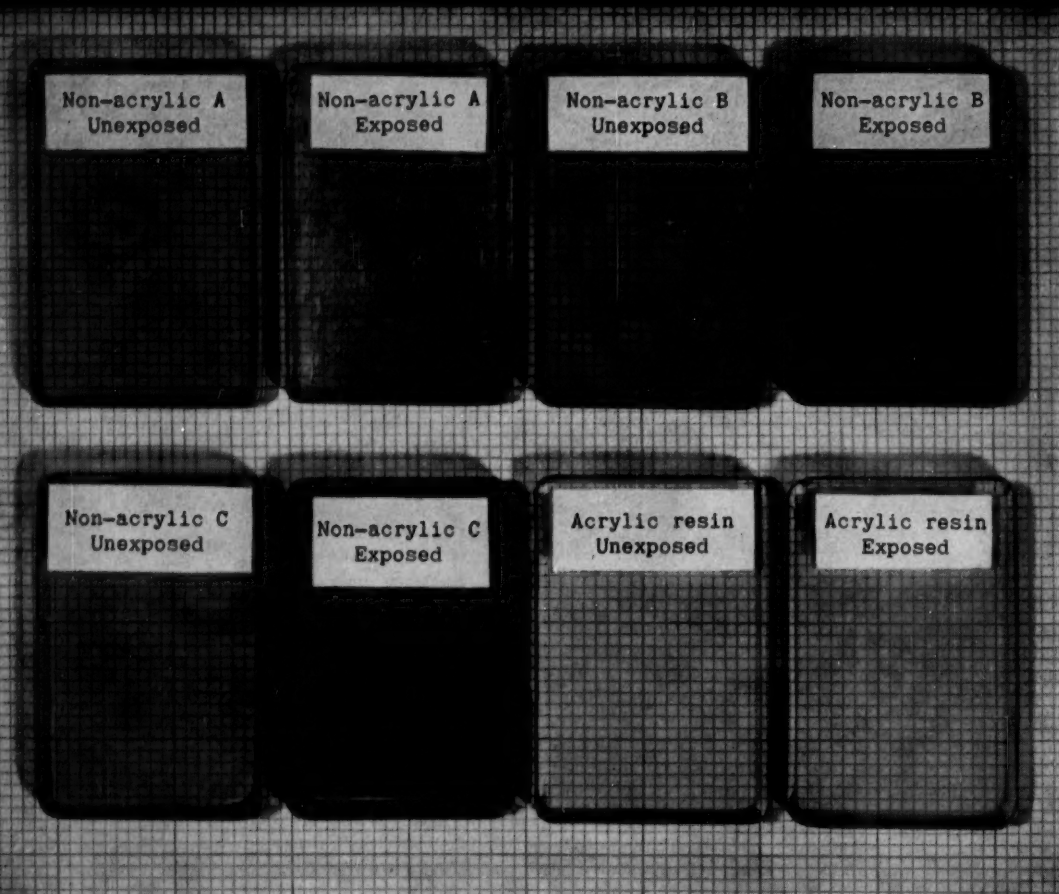
When you assemble cartons as they are needed, valuable storage space can become income-producing space. The Sillers Paint & Varnish Company for example, utilized Acme Steel Idea No. 425 to achieve greater efficiency throughout the packaging operation in its new Los Angeles plant. Previously, when the cartons were glued, extensive drying time and storage space were required. Now, cartons are stored flat and an Acme Steel Silverstitcher, using coiled Stitching Wire, assembles cartons as rapidly as required. In addition to time and space savings, shipments stay safely packed and arrive damage-free.

To make sure you are getting the most from your "packaging" dollar, ask your Acme Idea Man to analyze your packaging problems. Or, write Acme Steel Products Division, Dept. TV-94, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois.

AIM For Safe, Lower-Cost Shipping

ACME STEEL CO.
CHICAGO

**ACME
STEEL**



How to grow old without aging by using Rohm & Haas acrylate and methacrylate monomers

If you've ever seen acrylic resin sheets or water paints based on acrylic emulsions, you probably know how little these products show the effects of age—how remarkably well they resist attack by heat, light, weather, chemicals.

Look at the photograph above. Various samples of plastic products were exposed to ultraviolet light for identical, extended periods. Compare each unexposed sample with its exposed counterpart. Note how little the acrylic material has changed.

The ability of many copolymers containing acrylates or methacrylates to resist aging is superior to that of the corresponding acrylic-free polymers. Copolymers of vinyl chloride and an acrylate, for example, have aging properties superior to polyvinyl chloride.

Among the monomers which will copolymerize readily with acrylates and methacrylates are vinyl acetate, vinylidene chloride, acrylonitrile, butadiene, and styrene. Send for authoritative literature on monomeric acrylic esters.

LOOK TO ROHM & HAAS FOR ACRYLIC MONOMERS:

Methyl acrylate	Butyl methacrylate
Ethyl acrylate	Hexyl methacrylate
Butyl acrylate	Decyl-octyl methacrylate
2-Ethylhexyl acrylate	Lauryl methacrylate
Methyl methacrylate	Stearyl methacrylate
Ethyl methacrylate	Glacial methacrylic acid

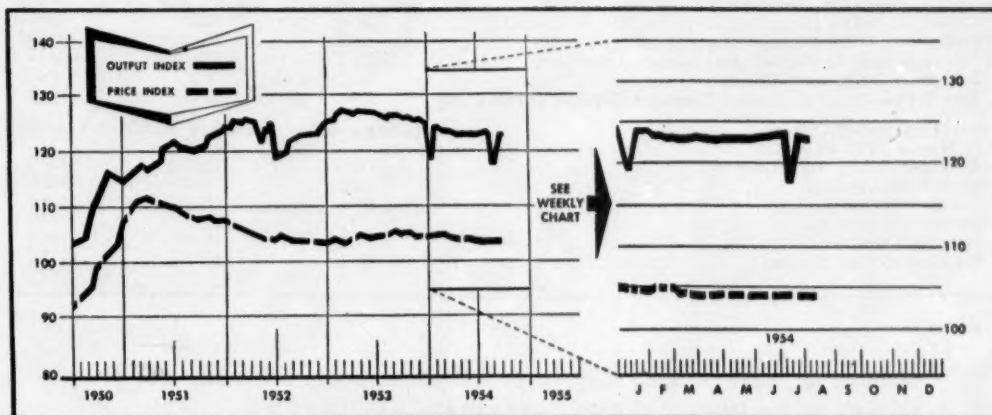


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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

As postvacation business gets back in step this week, chemical makers are evaluating foreign markets (see story on West German production, p. 80). Italy, long a supplier of urea to the U. S., is said to be heavily sold into 1955. Other reports have it that naphthalene and phthalic anhydride aren't entering the U. S. to as great an extent as they were because of growing foreign competition for supplies.

Rumblings in the cottonseed oil market follow on the heels of the U. S. Dept. of Agriculture's decision to hold the Commodity Credit Corp. domestic sales to a definite floor (CW Market Letter, Sept. 4). W. R. Blake, executive vice-president of the National Cotton Council, hits hard the disparity created by the cottonseed price support program. By contrast, the CCC offers loans to the soybean producer, available at 80% of parity. There is no price floor under soybean oil.

Noting that there is enough cottonseed oil on hand (the government holds the equivalent of over 14,000 tank cars of refined cottonseed oil out of a visible supply of 17,716 tank cars) to produce a glutting billion pounds of margarine, Blake offers this market-unsrambling solution: export more soybeans.

Reason: the export demand is for oil seeds, not for oil. Cottonseeds have very poor long-term storage qualities. Each ton of soybeans exported reduces some of the over-all domestic surplus in the interchangeable domestic fats and oils markets. Many foreign countries prefer to buy the soybeans, use their own labor to crush them, feed the meal to their cattle.

The trend to push multipurpose metallic-soap greases into wider markets (CW, May 1, p. 55) is gaining recruits. Latest in the movement is Esso Standard Oil Co. Although an old-timer in the lithium grease business, they're now marketing one that may hit a high point of ubiquity: it's slated for lubrication duty in automobiles, home, farm, shop, and in some industrial applications.

Esso's new product points up still another growing trend: the

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.0	122.9	126.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.2	104.8
Bituminous Coal Production (daily average, 1,000 tons)	1,295.0	1,260.0	1,624.0
Steel Ingot Production (1,000 tons)	na.	na.	na.
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	314.6	320.9	244.8

MONTHLY INDICATORS—Production (Index 1947-49=100)

	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	117.0	124.0	129.0
Durable Manufactures	127.0	135.0	147.0
Non-durable Manufactures	109.0	116.0	113.0
All Chemical Products	134.0	139.0	139.0
Industrial Chemicals	150.0	152.0	160.0
Petroleum & Coal Products	123.0	125.0	132.0

blending of other metallic soaps with the lithium soap. Their latest lubricant includes a mixture of a calcium soap and a lithium soap.

A growth stimulant for epoxy resins is provided by a 10¢/lb. reduction in Shell Chemical's and Bakelite's carload, dms., dlvd. price—now pegged at 90¢/lb., effective Sept. 1. Ciba Co., Inc., is holding off its announcement.

Epoxy resins have secured a steady market in aircraft, automotive, and electronic industries, where their use in tools, dies, and potting is expanding. The manufacturers are now anxious to encourage fabricators in other fields to use the epoxies.

BDSA has just received budget approval to update its 1950-52 end use pattern (CW, Jan. 2, p. 45). Questionnaires, not yet ready, will be distributed soon to benzene producers.

If steel makers were to receive the BDSA benzene production questionnaire this week, they would have to report what for them are disappointing output totals. Some would have to admit that their coke ovens aren't turning out enough coal chemicals to satisfy all their customers. Curtailed steel production (CW, Sept. 4, p. 77) has put a damper, of course, on benzene and such other coke-oven by-products as toluol, xylol, naphthalene, and cresylic acid.

Optimism ought to be at a rosy high for those chemical manufacturers who backed the development of liquid synthetic detergents. They can look with satisfaction at the latest figures compiled by the Assn. of American Soap & Glycerine Producers, Inc. (New York). Liquid synthetic detergent sales in the first half of 1954 soared 34.7% over those of the comparable period in 1953 (55.4 million lbs. vs 41.2 million lbs.). Sales of all synthetic detergents edged over 13% for the same period (1,021.1 million lbs. vs 902.3 million lbs.).

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending Sept. 3, 1954

UP							
	Change	New Price		Change	New Price		
Coconut oil, crude, tanks, N. Y.	\$.00125	\$.12875	Soybean oil, crude, tanks, Decatur	\$.00125	\$.15000		
Lemongrass oil, cns., dm.	.10	1.60	Wood rosin, South, Katy, Mary				
			per cwt.	.15	7.60		

All prices per pound unless quantity is stated.



Here's a new source for caustic soda

If your plant is in this area you can now have liquid caustic soda delivered more rapidly, more dependably, than ever before.

Here's what this new Hooker caustic soda plant at Montague, Mich., means to Midwest industry:

- 1. Fast delivery.** You can have caustic soda delivered by tank car, loaded and dispatched within 24 hours of your call. In and near Chicago, tank car deliveries are made from Chicago stocks.
- 2. Freight savings.** Depending on locality, you can save up to \$2.84 per ton on freight. (To learn specific freight savings to your plant, just phone the Chicago office—Central 6-1311.)
- 3. Dockside delivery.** On Lake Michigan and adjacent waterways you can have Hooker caustic delivered by barge—a

new Hooker service (minimum 250 tons, dry basis). Savings are substantial.

- 4. Prompt service you can count on.** At the Hooker sales office, 1 N. LaSalle St., Chicago, men are ready to help you plan efficient handling and storage, meet emergency needs, work out the most economical purchasing and delivery arrangements.
- 5. Smoother, better processing.** You can use constant processing methods, and get consistent results with Hooker caustic soda. It's produced under careful control; more than 20 separate inspections and analyses protect its uniformity.

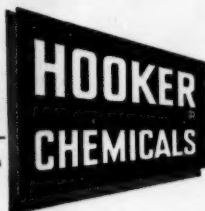
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Many industrial leaders in the Midwest are already enjoying the convenience,

economy, and dependable supply of Hooker caustic shipped from Montague.

You can have the same convenience and security *tomorrow*. Just pick up your phone and call us.



Caustic soda for Midwest industry comes from this new \$12 million Hooker plant at Montague, Mich. The plant is built over a tremendous bed of pure salt, which supplies the caustic-producing cells.



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The oil-soluble members of the Hercules Rosin Amine D family are chemical materials that might well contribute to new or improved products for you. In addition to the primary amine, Rosin Amine D, they include Rosin Amine D Naphthenate, Rosin Amine D Stearate, Rosin Nitrile D, and ethylene oxide derivatives (Polyrad®).

The wide range of physical and chemical properties of these challenging chemical compounds suggests many possible uses, such as corrosion inhibitors, bactericides, preservatives, pigment-wetting and pigment-dispersing agents, plasticizers for synthetic and natural rubber, and emulsifiers for oils and waxes.

Rosin Amine D forms wax-like salts and resinous amides by reaction with carboxylic acids, and reacts with metal salts to form resinous metal complexes.

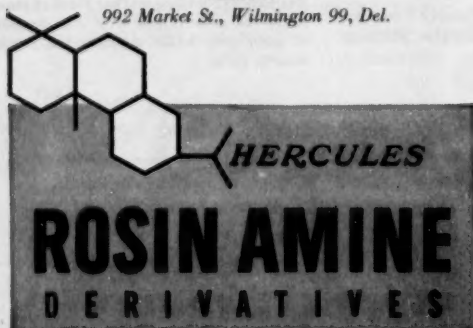
The known reactions and properties of Hercules Rosin Amine D and its derivatives may suggest potential uses of importance to you. Write for further information. You will be interested, too, in the water-soluble and acid-soluble types now available.

Naval Stores Department

HERCULES POWDER COMPANY

INCORPORATED

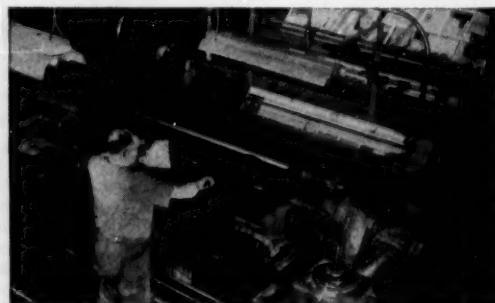
992 Market St., Wilmington 99, Del.



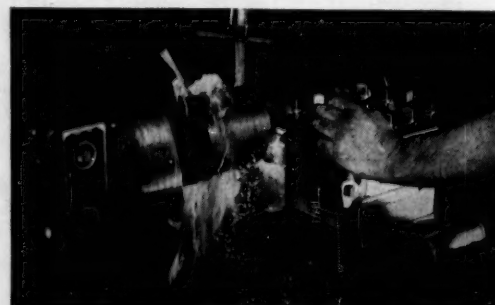
PIGMENT FLUSHING—Rosin Amine D is useful as a reagent for the production of flushed colors. Its use for this purpose is compatible with standard flushing practices.



FUNGICIDE—the value of Rosin Amine D and its derivatives as a preservative for many products has been demonstrated in rope, and other cellulosic materials.

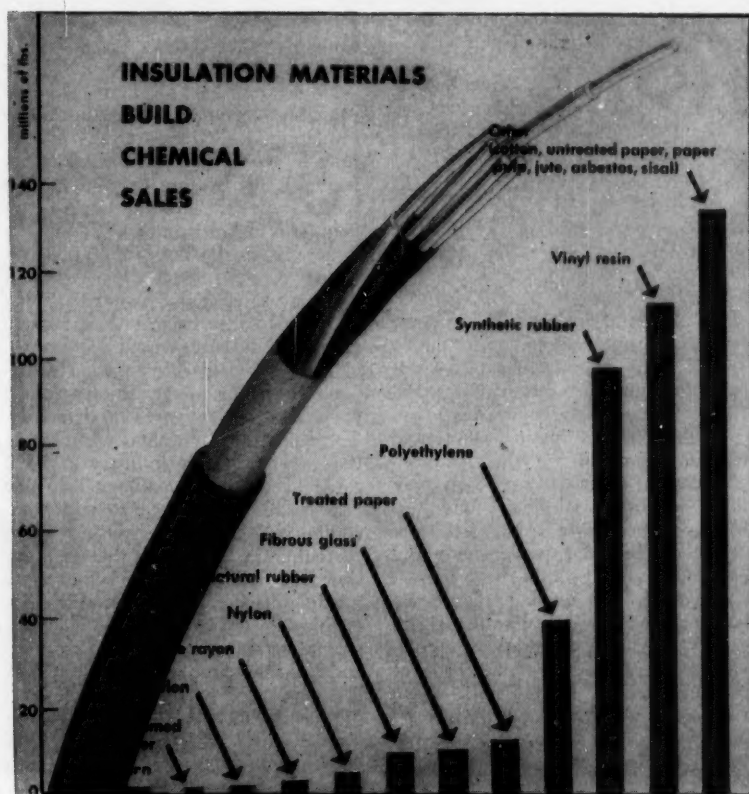


WETTING AGENT—In ceramic and printing inks, as well as asphalt compounds, the surface activity of the Rosin Amine D family leads to better products.



CORROSION INHIBITOR—Rosin Amine D derivatives have demonstrated their value in soluble cutting oils, and other hydrocarbon systems.

MA54-4



Chemicals Channel Current

Chemical manufacturers, already aware of the trend to plastics and synthetic rubber in the insulation and jacketing of electric wires and cables, are now able to see for themselves the whole use pattern of available products.

A use report by the Agricultural Marketing Service,* made available recently in preliminary form, shows, perhaps for the first time on a national basis, which types of electric wire and cable are outlets for specific chemically derived products (see chart above). Besides the products shown in the chart, the government report gives ample information about the consumption of cellulose products: paper, cotton, jute, sisal. (These may or may not have been treated with chemical products to achieve certain insulating or protective properties.)

But will plastics, the synthetic rub-

bers, and various modifications displace cotton and paper? They have had the latter on the run. The vinyl resins, for example, can function as dielectric barriers, or as separators, or as mechanical coverings, or in all of these capacities at once.

But to curb extravagant predictions that all conductors will soon be covered with chemical products comes this engineering advice from electrical experts: the designer can use almost any materials in his insulation and mechanical support system. He can design around a material's limitations, as well as up to its potentialities. But this he will be sure to watch: comparative costs and optimum material compromises.

Preference Prescribed: Of course, the use to which the wire or cable will be put largely prescribes the preference given to materials now commonly used. It's this sort of information that the chemical seller is anxious to glean from the USDA report. Which insulated wire or cable manufacturer should he approach with his products? First, here's an over-all indication of how the vari-

*The study was conducted by the Market Surveys Section of the Agricultural Marketing Service of the U. S. Dept. of Agriculture. The data for 1952 were collected last year by Dun & Bradstreet, Inc. (New York) under contract with the USDA. A full report, including detailed information, may be issued later this year or next.

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Purity: 100% soluble in acids

Grades: Technical

Packing: Carbonate—100# bags

Dioxide—200# fibre drums

Shipping regulations: None

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As the recognized pioneer in the development and processing of pyrethrum, MGK is the original and first producer of standardized pyrethrum extracts of brilliant clarity.

In addition, we have developed excellent synergized pyrethrum concentrates, dusts and powders. If your insecticidal sprays, dusts or aerosols include the use of pyrethrum in any form, or the use of its companion product allethrin, write for the latest authoritative data. We also have available recent information concerning the most effective synergists, MGK 264 and piperonyl butoxide.



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dust, fumes, gas, smoke, etc. Can be worn
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on inside of lenses keep fog off by a
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H. S. COVER, South Bend, Ind.

MARKETS

ous insulated wires and cables share
in all of the materials used:

Insulated Wire and Cable Type	Percentage of Materials Used
Communication	36
Building	25
Power	21
Appliance	10
Other	8
Total	100

On Top and Growing: Plastics are
used in largest volume for insulating
and jacketing wires and cables—close
to three-eighths of all insulation materi-
als (a hefty 159.5 million lbs.).

In this industry, plastics accounted
for nearly half of the total for com-
munication, a little more than two-
fifths for building, almost one-third
for appliance wire and cord, and
about one-fifth for power wire and
cable.

Together, the leading plastic in-
sulating materials—vinyl resins (prin-
cipally polyvinyl chloride) and poly-
ethylene—account for about 96% of
all plastics used.

A rundown of plastic outlets by
major wire and cable service shows
this pattern:

	Vinyl Resin (million lbs.)*	Poly- ethylene (million lbs.)*
Communication	34.0	34.0
Building	43.3	negl.
Power	16.3	3.0
Appliance	13.3	0.4
Other	6.3	2.5
Total	113.2	39.9

Prodigal Polyethylene: Of all its ad-
vantages, the low specific gravity—
0.92—is the outstanding property of
polyethylene for its use in insulating
and jacketing. It's a dramatic weight-
saver when compared with lead (spe-
cific gravity of 11.3). Too, it's a bet-
ter dielectric than most of the other
insulating materials available, has
good resistance to various solvents
and to ozone.

Polyethylene isn't found in the
building wire and cable insulation
category. Reason: it's not approved
by insurance underwriters because of
its flammability.

Although polyethylene hasn't re-
placed lead to a great extent, Western
Electric is using it in growing volume
as jacketing for its telephone cables.

Undoubtedly a sharp rise in con-
sumption of polyethylene in the elec-
tric wire and cable industry should

* USDA data include both civilian and military
consumption.

follow as greater supplies become
available next year.

In the other major class of plastics
— vinyl resins — polyvinyl chloride
probably accounts for 80% of the
insulating-jacketing materials used on
branch wires (distinguished from
feeders). Plastics are favored for the
feeder type of lines in the 600-volt
field, and makes up about 50% of the
materials used. But for 5,000-volt
usage, ozone resistance is required,
and that requirement eliminates PVC.
Wire and cable makers then turn to
the synthetic rubber field.

To obtain superior abrasion resist-
ance, the Army made use of nylon in
covering certain wires and cables.
Total U. S. consumption of nylon in
the wire and cable industry in 1952
rose just above 4 million lbs. But
cost is still a deterrent to wider ac-
ceptance.

Again, the search for better abra-
sion resistance has pushed fiber glass
into popularity. Besides, lower prices
enable it to compete with other
wrapping materials in building wire
and cable, where about 7.5 million
lbs. were used in '52.

Second Place: Second only to the
plastics, the synthetic rubbers take a
good two-fifths cut of the insulating-
jacketing materials market—98 mil-
lion lbs., which represent about 5.5%
of all U. S. synthetic rubber con-
sumed in 1952 (1,763.9 million lbs.):

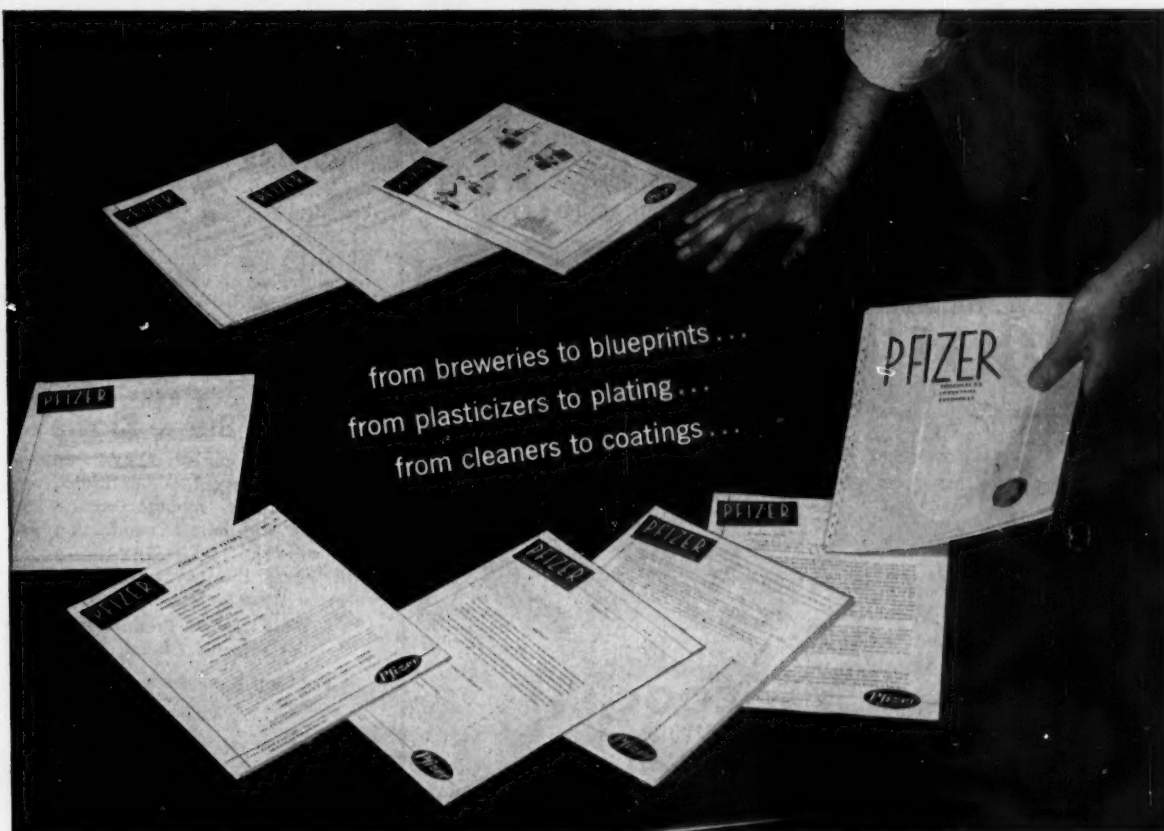
	Rubber Synthetic Natural (million lbs.)	
Power	29.8	3.7
Communication	24.8	3.4
Building	23.5	0.5
Appliance	16.7	2.3
Other	3.2	negl.
Total*	98.0	9.9

The principal types of synthetic
rubber were not broken out in the
USDA survey. Qualitatively, how-
ever, here's what they do for the wire
and cable people:

GR-S is largely used as insulation,
was used in wartime for jacketing
during emergency shortages of other
materials. Weatherproofing of wire
and cable consumes neoprene in jack-
ets. At this time neoprene is replac-
ing lead in underground cables. Butyl
rubber serves as insulation and jacket
material on high-voltage cables. Here,
too, some GR-S that has been cooked
with vegetable oils and sulfur is used.

Demand for natural rubber latex is
increasing gradually. It's admirably
suited for use in control cables (fire

* Reclaimed rubber amounted to an additional
1 million lbs.



HERE'S AN OPPORTUNITY TO ROUND OUT YOUR TECHNICAL INFORMATION FILE

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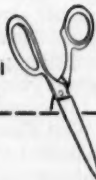
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Esters as Plasticizers.

PLATING:

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for Metal Cleaning, Pol-
ishing, Plating.

- ☐ No. 68 . . . Sodium
Citrate in the Electroless
Nickel Process.

CLEANERS:

- ☐ No. 15 . . . Citric Acid
and Ammonium Citrate
Dibasic to remove rust
and scale.

- ☐ No. 33 . . . Gluconic
Acid and Derivatives.

- ☐ No. 34 . . . Oxalic Acid
for solubilizing iron oxide.

COATINGS:

- ☐ No. 46 . . . Fumaric Acid
for alkyd resins, rosin
adducts, polyesters.

MISCELLANEOUS:

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Company _____

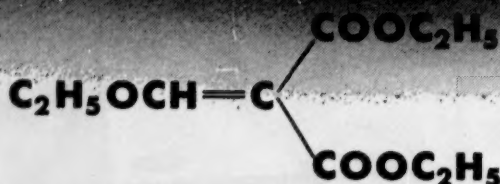
Address _____

City _____ Zone _____ State _____

(Please attach to your firm's letterhead)

A NEW KAY-FRIES INTERMEDIATE

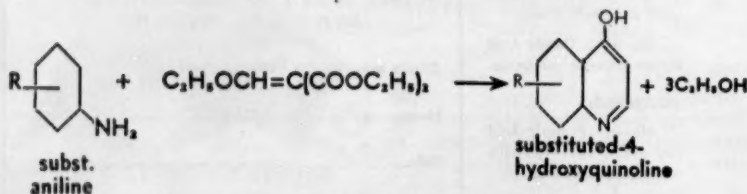
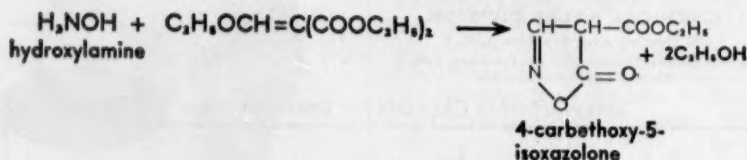
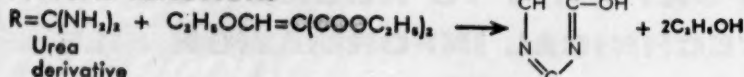
DIETHYL ETHOXY-METHYLENE-MALONATE



KAY-FRIES PROPERTIES

Boiling Point: 279°—281° C., with decomposition
 Refractive Index: 1.4625 @ 20° C/D
 Solubility: Insol. H₂O
 Specific Gravity: 1.0855 @ 15° C./15° C.

TYPICAL REACTIONS



Technical Bulletin Available

American-British Chemical Supplies, Inc.

Selling Agents For

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MURRAY HILL 6-0661



MARKETS

alarm, police signal, and utility). However, a dipping process for applying it to wire and cable is controlled by patents.

Just which materials are rising or declining in popularity will keep chemical sellers on their toes. The key to some of the newest developments—Mylar polyester film (polyethylene terephthalate), flame-resistant polyethylene, irradiated polyethylene—depends on the design engineer's adapting their properties for the greatest usefulness per dollar expended.

German Surge Slows

U.S. chemical marketers, ever mindful of keen, resurgent competition from West German manufacturers, are watching the latter's production indices closely.

This week they're comparing just-released West German figures:

West German Production of Selected Chemicals

Per Cent Increase of 1st half 1954

	Over 1st half '53	Over 2nd half '53
Sulfuric acid	10.7	3.6
Sodium carbonate	30.9	4.8
Nitrogenous fertilizers	37.4	40.3
Calcium carbide	3.9	3.1
Nitrogen	16.7	11.3
Caustic soda	20.2	3.2
Phosphatic fertilizers	7.1	2.9
Mineral dyes	26.1	0.8
Chlorine	16.5	4.3
Lacquers and paints	8.6	0.7
Hydrochloric acid	23.9	9.0

This much is pointed up: increase in production for the first half of this year has slowed in virtually all of the heavy chemical categories. Reason: the plants producing most of the important chemicals are already working at full capacity.

West German industrialists are not unmindful of this output-throttle, are planning to launch extensive plant expansions.

Optimism for the further increase of heavy chemical output in West Germany is increasing daily. That trend estimate is based on some reduction of the federal tax burden, an essential incentive to expansion programs.

Chemical exports, too, were about 30% higher in the first five months of 1954, compared with the corresponding 1953 period. U.S. chemical makers are apprehensively watching the impact of resurgent German output on world markets.

CHEMICALS OUTLOOK

September 1954



ARE WYANDOTTE'S PLURONICS JUST ANOTHER NONIONIC?

HERE ARE THE FACTS

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

Many chemists have frankly asked: "Why should we take valuable time from an already full schedule to evaluate the Pluronics when there are more than 1000 surface-active agents on the market?" . . . "Is there enough difference in the Pluronics to warrant an extensive study?" . . . "Is a Pluronic just another nonionic?"

Actually, the Pluronics are unique — so different that unless your evaluation takes in their over-all advantages and better all-around balance, you may not have visualized their full potential. For example:

The Pluronics are the first commercial example of a block-polymer-type surface-active agent . . . made from a hydrophobic polyoxypropylene base with hydrophilic polyoxyethylene groups attached to either end.

They range in molecular weights from 1800 (Pluronic L61), to 8000 (Pluronic F68) . . . ordinarily, surface-active agents have molecular weights of from 300 to 700.

Included in the Pluronics series are liquids of varying viscosities, pastes, and the first 100%-active nonionic (Pluronic F68) to be commercially produced in the solid state.

Briefly, the Pluronics exhibit a wide range of characteristics . . . L62 is a good wetting agent; F68 is an excellent dispersing agent; and L64, intermediate in properties, combines a balance of wetting, dispersing and emulsifying characteristics, making it exceptionally effective as a detergent.

Although the Pluronics are low foamers, the series offers a range of foam levels from very low (L62) to moderate (F68). Pluronic L61 is lower foaming than any other surfactant on the market . . . in fact, a small amount of it can be used to further depress the low foam of the other members of the series.

Pluronics are already established in water conditioning, in dishwashing and laundry compounds, in soaps, in metal-cleaning and -cutting compounds. Their nature makes it advisable for you to evaluate them on their over-all characteristics for maximum benefits . . . may we help you?



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ADS FOR AUTUMN: Will this year's campaign change the purchase pattern?

Drive for Fall Fertilizing

Farmers, country editors, and fertilizer distributors streamed from the gently sloping green hills of Wisconsin dairyland into Madison last fortnight. The lure: An all-day conference on "Fall Application of Anhydrous Ammonia" jointly sponsored by the University of Wisconsin and the Agricultural Ammonia Institute.

Important as the meeting was to the farmer, it was even more significant to the agricultural chemical industry. Core of the significance: the unanticipated response of rural Wisconsin. Although only a few hundred attenders were expected, over 1,000 thronged the series of lectures by leading Midwestern agronomists on the advantages of autumn nutrient application. This turnout is believed to be the first sizable showing of rural interest in extended fall fertilization.

The enthusiastic reception of the conference, some ag-chemical men feel, could well harbinger success for the first concerted effort of the National Fertilizer Assn., the Middle West Soil Improvement Commission, and farm-chemical makers to sell their fall fertilization plan to the farmer. And by the same coin, the response could mean that the initial stride's been taken towards easing the industry's long-time distribution headaches.

Just about ever since commercial

fertilizer became available, the industry has wrestled with the problem (CW, Mar. 7, '53, p. 34) of peak spring-light fall demands and doldrums for the rest of the year. This has meant shipping 50% of all production in March and April, 75% between January and June. The net result has been costly to both the industry and the farmer. To meet this "one-shot" demand, storage space has



NFA's RUCKER: At the root of it all, "the farmer's human nature."

to be found, overtime production scheduled, rush shipment made. In turn, the farmer suffers the consequences of his own purchase pattern: delayed delivery, shortages of specific nutrients, higher prices, late crop starts.

To date, special incentives to dealers and farmers to stock early have been of little avail. Producers have found that few take the advantage and that when the discount period is over the cut price is still expected. Root of the problem, according to Delbert L. Rucker, NFA director of information, is the farmer's human nature. He puts off purchase—and just won't put his capital underground early.

New Hopes: Despite the general futility of past efforts, NFA, MWSIC and individual concerns are quietly hopeful about their extensive plans to encourage fall fertilization. The foundation for optimism: a growing accumulation of favorable reports on autumn soil treatment from numerous state experimental stations and agricultural experts.

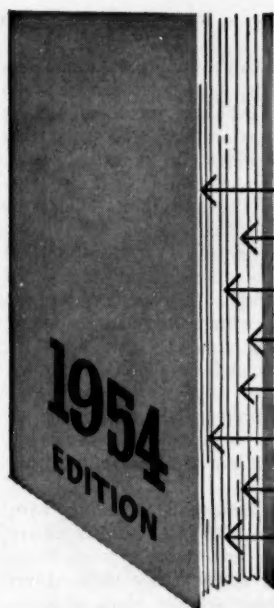
Autumn soil enrichment has long been practiced in winter wheat and small grain culture but never spread to pastures or corn and oat production. Within recent years, state experimental stations have been checking the pros and cons of extended fall application. At present, over one-third of all states report autumn treatment benefits for the farmer. These are some of the typical comments from state stations and authorities:

- "Land is generally more accessible because of fall dryness. Time and labor is much more available in the fall than in the spring. Root zones are more deeply penetrated and soil microorganisms accomplish more complete decomposition of dead roots."

- "Small grain yields increase about as much from fertilizer put on in the fall as from spring-applied fertilizer. The same is true for corn."

- "The seasonal variation in fertilizer movement... is not economical to either the manufacturer or the farmer. If fertilizer could be applied in late summer or fall with the same increases... fertilizer could be supplied... at a lower cost."

Fall fertilization, point out the soil scientists, does, however, have some limitations. Nitrogen application in warm, sandy soils, where leaching losses could occur, calls for care. And in heavy loams, the farmer must wait until soil temperatures drop below



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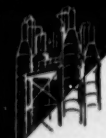
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56 F before treating with non-nitrated nitrogen. Otherwise, soil bacteria convert the fertilizer into leachable nitrates. But for huge expanses of the Middle West, parts of the South, and other areas having suitable conditions, fall fertilization, researchers aver, should prove out.

New Plans: This fall, the NFA, the MWSIC, and many companies plan to put this impressive array of fast-sprouting evidence before the American farmer. While fall application promotion in itself isn't new, the integrated effort is bringing boosted activity. Here is how they hope to halt inefficient fertilization and concomitantly smooth their distribution problem:

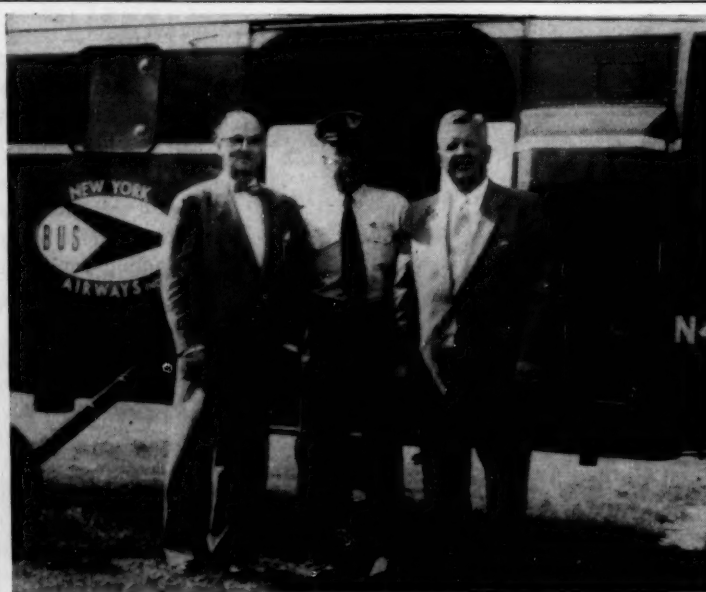
- National Fertilizer Assn., shouldering part of the burden, will push hard for rural press write-ups. For each state, where practicable, the organization will circulate the independent findings of that state's own experimental stations. Country editors, radio stations and farm associations comprise most of the mailing list.
- Middle West Soil Improvement Commission will shoot for news stories

of interest to the rural press and radio. Additionally, it plans to send a news letter to industry members urging fall fertilization and will prepare a special booklet on winter wheat, pointing up reasons for fertilizing in the fall. The commission will stress such established facts as the ease of using heavy trucks on firm fall ground and the bonuses gained from fall underplowing of nitrogen, phosphate and sulfur with corn stalks or wheat straw.

Added clincher: dissemination of tagged-atom studies proving that properly applied, fall application of nitrogen and phosphates lasts the winter, is fully available for its spring chore.

Makers' Drives: Dovetailing with the NFA and MWSIC campaigns are sizable manufacturers' promotions. Evidencing considerably stepped up activity, these are the plans of some makers:

- Allied Chemical's Nitrogen Div. will amplify and extend last season's heavy campaign. Full page ads in 6 to 8 leading farm media, begun in midsummer, will be carried through



Helicopters Hop Up Service

MARKING the inaugural flight of their company's new helicopter service, Traffic Manager A. J. Edgar (left) and Markets Manager T. Floyd-Jones (right), Lederle Laboratories Div., American Cyanamid Co., congratulate New York Airways pilot Howard Higgins. Following a LaGuardia, Yonkers, West

Nyack, Lederle - Pearl River, Pleasantville, White Plains, New Rochelle, LaGuardia route, and tying into air mail, express, freight and passenger services, the helicopters are expected to expedite order handling between Lederle and its customers throughout the country.

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V-C Phosphoric Acids and V-C Sodium Polyphosphates are now available for prompt shipment from the recently-completed, new Virginia-Carolina Chemical Corporation Plant at Fernald, Ohio, in metropolitan Cincinnati.

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Basic in Phosphorus

THE BASIC POSITION of Virginia-Carolina Chemical Corporation in phosphorus and its growing family of useful compounds is the result of nearly a century of progressive pioneering, including this country's first mining of phosphate rock in 1868 and first commercial production of phosphoric acid in 1907.

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"wet process" and by phosphorus conversion. Other V-C facilities yield phosphoric anhydride, sodium orthophosphates and sodium polyphosphates, phosphatic specialties, and sodium metasilicate.

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late fall. Over 350 rural papers are again to be utilized and dealers will receive upwards of 250,000 "broad-sides" (large folders) plugging fall fertilization. Dealer "mats" for local advertising and radio plugs are also in work. According to company officials, both liquid and dry nitrogen fertilizers will be pushed for fall fertilization.

• Davison, with a big stake in phosphates, plans to prod the farmer toward more fall application. Ads in national agricultural journals, regional and local papers will play an important role. These will stress the findings of the particular local experiment stations. On the airwaves, effective use of the endorsement technique is planned: outstanding farmers in the immediate area will report their own fall fertilization experiences (via on-the-farm interviews). Direct mailings to productive dealers, dealer meetings, and county fair exhibits round out the program. Compared with last year, estimate company spokesmen, radio appeals are doubled and direct mail tripled; farm paper ads remain about the same.

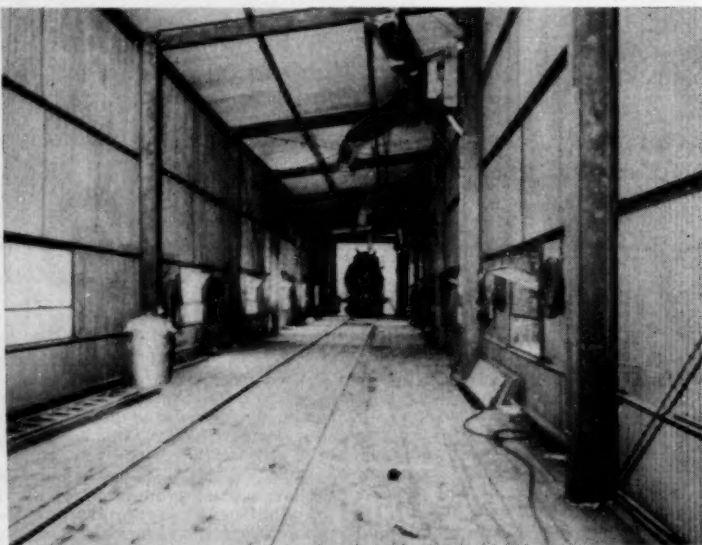
• Mathieson's mode of operations centers on farm paper promotion in

the North Central and Great Lakes regions, will be Mathieson's largest yet. Field forces will be upped for the drive through additional hirings and temporary transfers. Demonstrations of anhydrous ammonia application and radio pitches complete the firm's fall fertilization plans.

• Others: International Mineral Corp., which has allotted one-third of its yearly schedule to autumn treatment, will continue this year. Swift will supplement its ads on fall fertilization for winter wheat and pasture with a letter to dealers and field men pointing out that potential sales in the fall are greater than ever before. American Agricultural Chemical will maintain fall promotion at last year's level.

Bottleneck Breaker? If this concerted effort to sell fall fertilizing to the farmer succeeds, the industry will break its oldest and biggest distribution bottleneck. For by truncating its traditional spring peak, it can reach a position to meet all seasonal requirements, purchase raw materials more economically, obtain investment-return all year, and eventually pass along the savings to the farmer.

And, more directly, it will have



New Line-up for Linings

COMPLETED last week, Chase Chemical Corp.'s tank car lining plant at Edgeworth, Sewickley, Pa., completes the company's current expansion program. The plant building measures 25 x 175 ft., can house four hopper or tank cars at

a time. Built to handle the increasing demand for linings for tank cars hauling acids, solvents, caustic soda and other chemicals, the plant incorporates improved sand blasting, ventilating, lining, and curing facilities.

helped the farmer to help himself by using machinery and labor under optimum conditions, by stretching the pasture season; by some yield improvement; and by obtaining the discount some producers offer in the fall.

Smoothing the spring peak-demand won't be easy, however. Farmers, ever at the mercy of economic and natural elements, are mighty tough to convince. With this barrier to break, industry optimism is necessarily a bit restrained.

Cautioning against overexpectation, William Watmough, vice-president for Davison Chemical's Mixed Fertilizer Div., believes the campaign will need at least several years to take root. But, feels Watmough, this year's campaign is a heartening, promising pace away from historically uneconomic distribution.

Packaging Courses: Some 15 lectures at graduate level will be offered this fall in the evening course, Package Engineering, at Columbia University (New York City). Partial list of topics: Basic Considerations in Design, Choosing the Best Container for Certain Specific Commodities, Packaging Materials and Their Functions.

• Packaging, too, is the subject of an accelerated full-time, four-week course at Purdue University's Packaging Institute (West Lafayette, Ind.). The course covers technical and economic points.

• And, at the Ninth Annual Industrial Packaging and Materials Handling Exhibition in Chicago next month the University of Illinois will present a short course on some aspects of packaging.

• In New York, Oct. 25-27, the Packaging Institute will hold a forum. A few of the subjects to be covered: Material Testing and Specifications, Industry Training for Packaging Employees, Statistical Methods for Quality Control and Problems of Pharmaceutical Packaging.

Attitudes on Advertising: Recent survey sheds light on what sales managers are doing to convince their own sales forces of the value of their company's advertising. The study, "What Sales and Advertising Managers Think and Do About Merchandising Their Advertising", is a poll by Assn. of National Advertisers of 82 sales managers and 128 advertising managers. Posing seven fundamental questions, the survey obtained answers to the importance of ad selling, methods used, ad agency role, comprehension of the significance of ad merchandising in the company,

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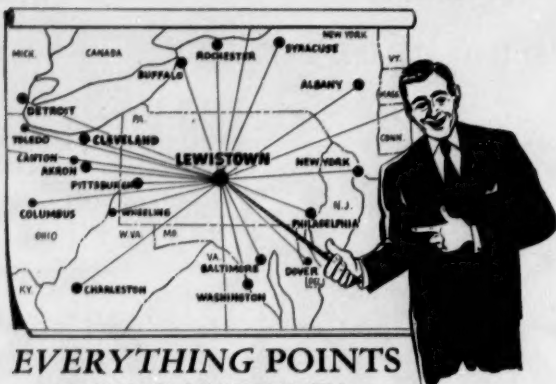
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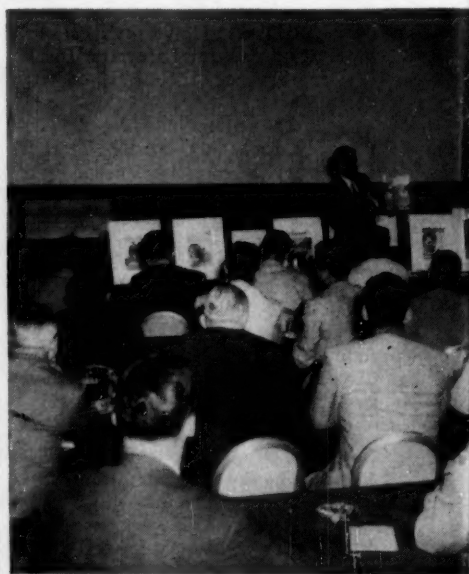
and the amount of time that should be and actually is spent. Some conclusions: misunderstanding of ad merchandising exists; frequently, inadequate funds are allocated for the job and that there's a lack of creative endeavor in ad selling.

Distributor Appointments: The Will Corp. (Baltimore, Md.) has been appointed as a distributor of Matheson Coleman & Bell's line of reagent chemicals in the Baltimore area.

• Frederic B. Stevens, Inc. was named sales representative of Louthan Manufacturing Co. for its foundry chemicals. By the move, Louthan, a subsidiary of Ferro Corp. (Cleveland), acquires sales offices in the Midwest, Middle Atlantic, and New England states.

• Designated as distributor by Merck Laboratory Chemicals, Hartman-Leddon Co. (Philadelphia) will vend Merck's reagents and fine chemicals in that area.

• Warwicks Wax Co. Inc. a subsidiary of Sun Chemical Corp., (Long Island City, N. Y.) has selected Shamrock Chemicals Corp. (New



TV Preview: Home

"MEDIC", the new NBC-TV program sponsored by The Dow Chemical Co., was previewed by approximately 300 food brokers in a closed-circuit television hookup recently. Gathered for the event in New York, Detroit, Atlanta, Kansas City and Los An-

York) to handle its products in Delaware and Pennsylvania.

- Pennsylvania Industrial Chemical Corp. (Clairton, Pa.) has named Rice & Co. to represent its products to the protective coatings and related fields in the Cleveland area.

- Stecker Chemicals Inc. (Ridgewood, N. J.) has appointed Charles Albert Smith Ltd. (Toronto, Ont.) Canadian agents for its slime- and fungus-control chemicals.

- The Nitrogen Div., Allied Chemical & Dye Corp., has secured exclusive distributorship rights for an ammonium nitrate-limestone fertilizer produced in Belgium.

For your reference:

- Expandable polystyrene—24-page booklet presents technical data and suggested applications. Bulletin C-4-204 Koppers Co., Chemical Div., Pittsburgh, Pa.

- Safety cans for storage of flammable liquids—2-page leaflet furnishes specifications for oily-waste receptacles and flammable liquid containers. Gardner Laboratory, Inc., Bethesda, Md.

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geles hotels, the brokers, who will handle Saran Wrap, Dow's household food packaging material, also heard Dow President Leland Doan and others present a summary of the company's promotional push planned for Saran Wrap this fall.

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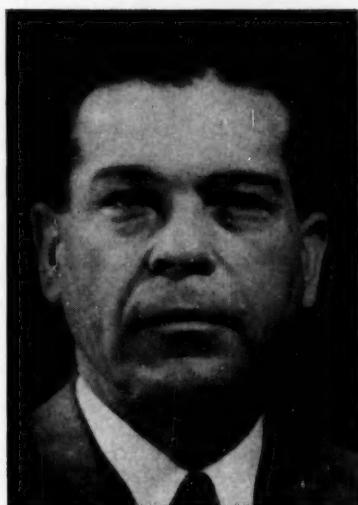
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EDITOR CORLEY: His job, nursing a collective brain child.

Progress and Profit

Commercial development, that phenomenon peculiar to modern chemical industry, is due to receive special recognition this coming week. Two events punctuate the vigorous growth of this branch of industry progress:

- A joint dinner meeting of the Commercial Chemical Development Assn. and the Chemical and Marketing Economics Division of the American Chemical Society. Kick-off of a week-long national ACS meeting, the event will spotlight milestones in commercial development over the past 25 years, discuss impact of development upon industry progress.

- The publication of CCDA's new book, "Successful Commercial Chemical Development."* According to a CCDA spokesman, the work, "the first publication of its kind, comprehensively pictures organized chemical development in the U.S., portrays the growth and importance of the field, outlines some career opportunities in commercial development open to young men entering the chemical industry."

Brain Child: CCDA has just reason to be proud of its new progeny. Conceived as a collective effort among competitive members in the industry, its completion testifies to the cooperative rivalry that characterizes chemical makers.

The subject matter of this book has been described as a "collective state of mind within a company." The story of the execution of the present work

* Editor-in-chief, H. M. Corley, John Wiley & Sons, Inc., 374 pages, \$7.75.

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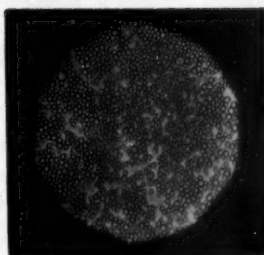
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DISTRIBUTION

can be similarly described in terms of the entire industry.

Working in chapter committee groups, an industry cross-section of more than 100 of CCDA's 350 members struggled to pioneer documentation of the principles that make for profitable chemical products.

Two pitfalls successfully negotiated by the committees:

- Establishing a set of definitions of development terms that would prove acceptable to all members of the profession.

- Achieving a balanced presentation that would truly represent the thought of all leading development men, rather than the methods of a few particular companies. This latter trick was turned through the offices of a review committee, whose job it was to establish proper proportion, while giving due credit for outstanding achievement.

For some years now, the development members of the chemical industry have been understandably proud of how, like Abou ben Adhem, in the list of industries interested in product development, chemicals have "led all the rest." Next week's events will add articulation to that pride.

Trucking Formalin

A few days ago, one of the large formaldehyde producers completed a move that may spell a new chapter in Eastern distribution of that chemical.

Opening a new center at Kernersville, N.C., Borden Company's Chemical Div., solidified its Eastern Seaboard tank-truck delivery to chemical and textile consumers in the area.

According to a company spokesman, the availability of tank-truck lots will afford purchasers at least two advantages:

- For drum-lot users who could step up purchases to tank-truck size, it means a drop from the drum price of 6.2¢/lb. (inhibited grade) to the tank-truck tag of 3.75¢/lb.
- For tank-car lot buyers who carry larger-than-necessary inventories in order to obtain the lower price, it means a possible lowering of inventory.

Previously, Borden had been offering tank-truck delivery from its Bainbridge, N.Y., and Demopolis, Ala., manufacturing plants. And although it had been producing formaldehyde at Kernersville, the output had been for captive use. In view of the competitive nature of the market, however, the company decided to capitalize on its plant location, set up the first continuous chain of tank-truck deliveries along the East Coast.



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For further information, call or write your nearest General Chemical office.

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